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THE ABRIDGMENT

FOR THE FISCAL YEAR ENDING JUNE 30, 1903.

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES

TO THE

TWO HOUSES OF CONGRESS

AT THE BEGINNING OF THE

SECOND SESSION OF THE FIFTY-EIGHTH CONGRESS,

WITH THE

REPORTS OF THE HEADS OF DEPARTMENTS

AND

SELECTIONS FROM ACCOMPANYING DOCUMENTS.

IN TWO VOLUMES.

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REPORT

OF

THE SECRETARY OF THE NAVY.

NAVY DEPARTMENT,
Washington, November 23, 1903.

The PRESIDENT.

SIR: In submitting the annual report of this Department for the last fiscal year, attention is invited to the estimates prepared and forwarded through the usual official channels, and to the recommendations made by the several bureau chiefs with regard to the needs of their respective bureaus. No attempt is here made to recapitulate the facts given or the recommendations contained in the carefully prepared reports of the bureaus, to which, accordingly, resort will be had for particular information respecting the doings of the Navy.

ORGANIZATION OF THE DEPARTMENT.

As the naval establishment grows in importance, and the amount of public money devoted to its maintenance is increased, its proper administration justly becomes an object of solicitude. There has been therefore much discussion concerning the organization of the Department. It is asserted by many, both within and without the naval service, that alterations in the organic law governing the administration of naval affairs would result in an increased efficiency and economy. The agitation for a change comes from so many and such respectable quarters that it can not be denied consideration. It has been pointed out with truth that in the civil war, and, in a very much less degree, in the war with Spain, the organization proved inadequate. The practices prevailing in times of peace were modified and additional agencies of military administration were adopted, and it is claimed that no administration of military affairs which is not adapted alike to war and peace is a suitable one. There can not be said to be an agreement upon the exact measure of the reform desired nor, indeed, an universal agreement that any reform at all is needed.

Before alluding to the changes which are proposed it would be well to recall the essential features of our present administration of naval affairs. The head of the Department is the Secretary of the Navy, exercising both the authority conferred upon him specifically by law and, under the direction of the President, the constitutional authority of the Presidential office. The business of the Department is distributed among eight bureaus, at the head of each of which is a naval officer appointed by the President, by and with the advice and consent of the Senate, for a term of four years. The distribution of business among the several bureaus is within the discretion of the Secretary, but this discretion ought not to be exercised in such a manner as to abolish in effect any bureau, nor can he terminate the tenure of office of the bureau chiefs. The distribution of business among bureaus independent of and unrelated to each other, except through the action of the Secretary, unquestionably creates a condition out of which grow conflicts of jurisdiction between the bureaus, sometimes injurious, and a tendency to consider the interests of the bureaus rather than the interests of the Navy. The division of business in the bureaus exists not only in the Department, but extends to the navy-yards, and even to some extent to the ships in commission. This leads sometimes to excessive and cumbersome organization and lack of harmony of effort, resulting from the fact that there is no coordination of work, except by the voluntary action of bureau chiefs, short of the Secretary's office itself.

The spirit of our institutions requires that the military power shall be and remain in strict subordination to the civil power. Accordingly, the Secretary of the Navy has been, and will be in the future, a civilian with the consequent inevitable limitations of knowledge. Although the Navy Department is in an important aspect an industrial establishment in which ships are built and repaired and armament and equipment manufactured, it must not be forgotten that the final purpose of its existence is military, and that all business which is transacted therein has for its end the creation and employment of effective power upon the sea.

It is therefore vitally important that there should be available to the civilian head of the Department the most accurate military information and the best military advice. Without both he would be sure to commit grave errors, which might lead to disastrous results. Moreover, no matter how sufficient the military information may be, or how many may be the officers of the Navy capable of giving sound advice, if the information and advice are scattered throughout the bureaus and in the naval service and reach the Secretary only by a happy accident, they will never be effective for the guidance either of the national administration or the representatives of the people in Congress, upon whose action ultimately the efficiency of the Navy must depend. In

such a case there would be power without knowledge in one place and knowledge without power in another place. The knowledge should be available to those who have the power to act, so that the power may be exercised with intelligence. To a system which does not accomplish such a result, he who may be in power and charged with responsibility in time of trial will fall a victim.

It clearly follows, therefore, that there should be some military man or men charged with the duty of the collection and collation of information and the giving of responsible advice on military affairs. The organization which lacks this feature is defective in a vital part. The statutory organization of the Department includes no agency which is charged with this most important function. Bureau chiefs, often, as during my administration, admirably adapted by their character and attainments to perform duty of this kind, are engrossed in the administration of their respective bureaus, have little time for other duties, are tempted to consider all questions from a point of view of their own bureaus, and hesitate to assume duties which by law are not imposed upon them. This has led to the enlargement of the function of the Chief of the Bureau of Navigation and the creation of the General Board, both of which will be referred to hereafter. The proposals for changes may be classified as follows:

First. Alterations in the organization of navy-yards which will increase the power and responsibility there over and for work progressing therein.

Second. The consolidation of the bureaus in the Department.

Third. The creation of a general staff, which shall be responsible for the efficiency of the vessels afloat and the personnel of the Navy, collect and digest military information upon which plans for active operations may be formulated, and act as the military adviser of the Secretary, having no authority except such as may be conferred upon it from time to time by the Secretary. It should be understood that the Department does not entirely lack the assistance which would be rendered by a general staff. The War College at Coasters Harbor Island, the Intelligence Office, the Board of Inspection and Survey, and the Bureau of Navigation work in intelligent cooperation with the General Board, which was created by my predecessor as the result of experience in the war with Spain.

The Admiral of the Navy, whose experience and advice, always fully available, have been of inestimable value, is the president of this Board, and the Chief of the Bureau of Navigation is chairman of its executive committee. Through these two officers the deliberations and opinions of the Board, based not only upon their experience as officers, but upon the work of the bodies above enumerated, are brought to the attention of the Secretary. Together the Admiral of the Navy and the Chief of the Bureau of Navigation are in a consider-

able measure performing the duties of a chief of general staff. The Board has no existence except by virtue of the departmental regulation, which may at any moment be modified or repealed.

It is not my purpose to recommend specifically at this time any of these proposals, but only to bring them forward for the earnest discussion and consideration which their importance deserves. Mere change is not reform, and none should be attempted until it appears clearly that conditions would be bettered thereby.

I venture, however, to express the hope that Congress may give to the whole subject of the organization of our naval establishment its best thought and attention. The cost of our naval establishment, as well as the importance of the efficiency of our Navy, would amply warrant all the study which can be given.

It should not be inferred from the fact that the foregoing criticisms are brought forward for discussion that any reflection whatever is intended upon those who are engaged in administering the present system. Their work is well done. The bureau chiefs, especially, have been always ready to secure harmony of action and coordination of work by consultation, and loyal and faithful in carrying into effect the views of the Department, and I take this occasion to express my hearty appreciation of their work. If there are faults in administration, they are attributable not to individuals but to the system itself.

If it should be the pleasure of the committees of Congress to take into consideration this important subject in accordance with this recommendation, the Department would gladly cooperate with them by collecting and furnishing information in respect to the methods pursued in other countries, and detailing such officers as they might desire to assist them in their investigations and deliberations. It would also seem to be quite possible to obtain the advice of men in private life who have been engaged in the management of great industrial enterprises.

NAVAL ENGINEERS.

Differences of opinion still exist as to the measure of success which has attended the consolidation of the Engineer Corps with the Line, which was effected by the act of March 3, 1899. It is gratifying to know that both the Chief of the Bureau of Navigation and the Chief of the Bureau of Steam Engineering believe that the consolidation is working well, and I am informed that such is the opinion of the majority of our officers. It is sometimes said that the same scheme of consolidation has been introduced into the British navy. There is, however, an essential difference between our own and the British plan.

In December, 1902, the scheme of the Admiralty providing for the present organization of the British navy was promulgated. In com-

paring the two systems it is obvious that both proceed upon the theory that the best results can be secured by early companionship and unity of preparatory instruction, and there has been provided accordingly, for line and engineering officers alike, in each navy, one source of supply and uniformity in entry, study, and general training. The vital point of difference between the two systems is found in the fact that in the British navy a junior officer upon reaching the age of twenty, or thereabouts, is assigned to one of the three branches of the service, and thereafter pursues accordingly a specialized course of study and training in the duties of the line, engineering, or the Marine Corps; while in the American Navy no provision is made for the maintenance of a separate corps of naval engineers.

Minor points of difference between the British and American systems are the following:

1. In the British service nominations of candidates for naval cadetships are made by the first lord of the admiralty, with the exception of a limited number placed at the disposal of certain officials, while all appointments to the United States Naval Academy are made on the nomination of Senators, members of Congress, or the President.

2. In the British service cadets enter between the ages of 12 and 13. Midshipmen enter Annapolis between 16 and 20.

3. Cadets entering under the British regulations pay £75 per annum, a limited number, however, being accepted upon payment of £40 only. In addition British cadets are charged with certain incidental expenses. On the contrary, midshipmen at Annapolis receive pay at the rate of $600 per annum, with certain allowances.

In a supplementary statement issued by the first lord of the British Admiralty, the declaration is made that future Boards of Admiralty may provide for a complete interchangeability of line and engineering duties, but that at present the division of duties shall remain definite, without interchangeability. The British Admiralty has given assurance to those electing engineering duty that the rank of engineer officers will be assimilated to that of executive officers, it being provided that the engineer officers will wear the same uniform and bear the same titles of rank, e. g., "sublieutenant (E)," "lieutenant (E)," "commander (E)," "captain (E)," and "rear-admiral (E)." The Admiralty also declares that—

> The engineer branch will receive additional pay, and although it is proposed to make the divisions into the various branches definite and final, every endeavor will be made to provide those who enter the engineer branch with opportunities equal to those of the executive branch, including the same opportunity of rising to flag rank.

The policy of England and the United States in these particulars has not, so far as the Department is aware, been followed by any of the continental navies, but the question of the status of the naval engineer is understood to be under serious discussion by foreign admiralty boards.

The problems presented by modern naval engineering are of the highest order, and demand for their full mastery and solution expert training, experience, and patient, painstaking, and enthusiastic study and effort; and in view of the rapid development in power and complication in the main and auxiliary machineries of naval vessels the subject is one of growing importance.

AGE AND COMMAND RANK.

Of the several officers in command of the eleven battle ships of the Navy now in commission, two are 59; one is 58; three are 57; three are 56, and two are 55 years of age. The ages of the officers who, in course of time, will be selected to relieve them will be about the same. The duty of commanding battle ships and fleets of battle ships is one which demands not only experience and ability, but also makes heavy drafts upon the energy and nervous endurance of the officers charged with such responsibility, upon which the success or failure of the Navy in important crises may depend. The Chief of the Bureau of Navigation again brings to attention the importance of devising some plan by which officers will attain command rank and duty at an earlier age than under the present system. It is true that, during and since the period of the war with Spain, no fault has been found on account of lack of endurance on the part of any officer in command; but it is reasonable to look forward to times of greater strain in peace as well as war than the Navy has heretofore known, and to provide therefor.

In discussing this subject, the Chief of the Bureau suggests as the only remedy for the evils attending the tardy attainment of command rank—a defect inherent in other military and naval systems—early compulsory retirement in the higher grades. He says:

> The process is simple and need be applied to not more than two grades. It may be briefly described as follows: An officer of 50 years of age who has not attained the rank of captain will retire, and a captain who at 55 has not reached the grade of rear-admiral will retire.
>
> It should be stated that this method is in some other services accompanied by the selection to a limited extent of officers for promotion in grades below that of captain.

CITIZENSHIP OF ENLISTED MEN.

It is gratifying to note that the percentage of citizenship in the enlisted force of the Navy is steadily growing. The number of enlisted men in the service June 30, 1903, including petty officers, seamen and other ratings, landsmen for training, and apprentices, was 27,245. Of this number, 79.8 per cent were native born and 10.9 per cent naturalized citizens, the total percentage of citizenship being, therefore, 90.7 per cent, as compared with 89 per cent at the beginning of the fiscal year. Among landsmen for training, the percentage of

native-born citizens was 93; naturalized or having declared intentions, 6.7 per cent; aliens resident in the United States and nonresident, three-tenths of 1 per cent only. Of apprentices enlisted, 95 per cent were native born.

DESERTION.

The offense of desertion has always been regarded as one to which peculiar odium attaches. In the American Navy it exposes the person convicted thereof to severe penalties—in time of war to a possible sentence of death, and in time of peace to confinement in a naval prison for a period not exceeding one year, with loss of pay, dishonorable discharge, and ineligibility to reenlistment. In addition to these direct penalties, a man convicted of desertion is, under provisions contained in sections 1996 and 1998 of the Revised Statutes, "deemed to have voluntarily relinquished and forfeited" his rights of citizenship, and to be "forever incapable of holding any office of trust or profit under the United States, or of exercising any rights of citizens thereof."

Notwithstanding the grave consequences that attend the commission of this offense, the history of the Navy shows that a certain percentage of desertions has been the rule for many years. During the period of the upbuilding of the new Navy the percentage, while fluctuating under the influence of changing conditions, has been materially affected by nothing except the occurrence of war.

As the result of inquiries made at the instance of the Department during the past year, it appears that the causes of desertion as assigned by officers are various, and that the enlisted men also differ widely in their opinions on the subject. Some of the reasons given by the men, deserters and others, are discontent with the food, discomfort of sleeping accommodations, deprivation of liberty on shore, harshness in language and bearing on the part of officers toward the crew, etc. Among other causes named are the naturally restless spirit of young men who, irrespective of conditions, desire change; disappointment of the recruit who anticipates an easy and leisurely time at sea, but finds that ship drills and routine, care of guns, etc., demand the full term of working hours, substantially as in most trades ashore; distaste for military or maritime life on the part of men who, having been recruited from the interior States, are without previous training or experience in either.

Statistical information relating to the history of desertions in the Navy is at present available in three groups of years only—i. e., 1876, 1877, and 1878; 1887, 1888, and 1889; and from 1891 to the present time. As it happens, however, the data thus accessible cover the periods of marked changes in the administration of the enlisted per-

sonnel of the Navy, and show that when such changes are made, either by a material enlargement or reduction of the personnel, desertions increase in number. In this connection attention is invited to the following statement:

Table of desertions.

Year.	Total enlisted personnel.	Desertions.	Percentage.
1876	7,500	1,203	.160
1877	7,012	818	.116
1878	7,020	669	.090
1887	8,342	773	.092
1888	8,354	1,121	.134
1889	8,147	749	.091
1891	8,250	1,388	.168
1892	8,250	1,260	.152
1893	8,250	1,259	.152
1894	9,000	920	.102
1895	8,737	888	.101
1896	9,000	1,041	.115
1897	10,327	1,323	.128
1898	22,828	1,317	.057
1899	14,501	2,023	.139
1900	16,832	2,452	.147
1901	18,825	3,158	.167
1902	21,433	3,037	.141

As appears from the foregoing table, the maximum percentage of desertions under peace conditions is a little less than 17 per cent, the minimum a little more than 9 per cent, and the normal between 11 and 12 per cent. During the fiscal year 1903 the percentage of desertions, as reported by the Bureau of Navigation, was 12.5, a little above the normal percentage in time of peace. Taking into consideration the fact that in the early part of March, 1903, the number of men enlisted reached the maximum; that Congress about that time authorized, an increase of 3,000 men; that enlistments have been proceeding actively, and that recruiting has been extended to the Middle and Western States among a population not having the sea habit, and who upon enlistment enter a new and strange environment under conditions radically different from anything they have theretofore experienced; and taking into account the discontent arising from numerous incidental circumstances attendant upon a sudden increase of the enlisted force, and the rigid requirements resulting from present activities in naval training, ship and squadron drills, etc., it is gratifying to note that the offense of desertion is, apparently, not a growing one.

Ways and means by which to reduce the number of desertions are receiving, and will continue to receive, earnest and thoughtful attention; but, in view of the history of the offense, present conditions can not be regarded as alarming. It is to the credit of the enlisted men of the American Navy that, as shown by the foregoing table, during the year 1898—the war year—the number of desertions did not reach one-half the normal percentage in time of peace. A general examination of the records of the Department discloses the further fact that such

desertions as did occur during that year were, as a rule, not at the front, but from receiving ships or at navy-yards and stations far from the scene of hostile activities.

During the past year instructions have been given that men who, having absented themselves from the service without authority, voluntarily return shall be treated not as deserters but as stragglers, and, accordingly, tried by summary instead of general court-martial. The maximum penalty imposable by a summary court is three months' confinement, with corresponding loss of pay and bad conduct discharge. Men apprehended and delivered to the naval authorities, after an absence of not more than three months duration, are likewise tried by summary court. The proceedings of all courts are rigidly scrutinized, it being the Department's purpose to see that no man in the service is convicted of an offense unless upon proceedings duly conducted according to military law, and upon evidence sufficient to secure a like verdict before a jury in the criminal courts of the land.

In further amelioration of conditions affecting the desertion problem, stringent orders have been issued to recruiting officers respecting information to be given to men seeking enlistment; scrupulous care is exercised in looking after the items of food and quarters for the men; substantial increase of pay is provided for success in gunnery competitions; and commanding officers have been instructed to avoid as far as practicable irksome restrictions in the matter of liberty on shore.

The Chief of the Bureau of Navigation expresses the belief that by these means—by the offering of greater rewards to those who remain in the service, by better provisions for retirement, and by the opening of the commissioned grades of the Navy to warrant officers—the service will in the future offer advantages comparing favorably with those to be found in most trades of the country, and that the considerations of separation from home and the discomforts incident to ship life should not and will not be sufficient to prevent good men from making service in the Navy a permanent occupation.

COMMISSIONING WARRANT OFFICERS.

In discussing the advantages offered by enlistment in the Navy as a field of permanent service, the Chief of the Bureau of Navigation calls attention to recent provisions of law opening the commissioned grades of the Navy to warrant officers. The act of March 3, 1901, contained the following clause:

> Whenever in view of the vacancies in the grade of ensign on July thirtieth in any year unfilled by graduates of the Naval Academy the Secretary of the Navy shall so recommend, the President may appoint to that grade, as of July thirtieth, from among the boatswains, gunners, or warrant machinists, not exceeding six in any one calendar year. No person shall be so appointed who is over thirty-five years of age,

who has served less than six years as a warrant officer, who is not recommended by a commanding officer under whom he has served, nor until he shall have passed such competitive examination as may be prescribed by the Navy Department.

By later enactment, March 3, 1903, Congress enlarged this provision as follows:

Hereafter in each calendar year there may, under the restrictions imposed by existing law, be appointed from the boatswains, gunners, and warrant machinists of the Navy twelve ensigns.

Under these statutes fourteen warrant officers have applied for examination, five of whom proved to be ineligible on account of age or other disqualification, while four succeeded in passing and have been commissioned as ensigns. The Chief of the Bureau of Navigation expresses the view that "six years is too long a time for warrant officers to be required to serve as such before becoming eligible for examination for the rank of ensign," and he recommends that the period be reduced to two years. In making this recommendation the Chief of the Bureau emphasizes the importance of encouraging the younger warrant officers to enter the commissioned ranks, "especially since * * * the extension of the field of recruiting into the country districts and throughout the Central West has drawn upon a body of young men, of whom a good proportion have qualities of mind and character well fitting them to become commissioned officers of the Navy." "This being assured," the Chief of the Bureau says, in concluding his recommendation upon this subject, "the introduction of men from the ranks into the commissioned officers' list is, when restricted to a moderate number per year, a good feature."

In the conclusions and recommendations of the Bureau on this matter the Department fully concurs.

PROTECTION OF ARTISAN EMPLOYEES.

In my last annual report attention was invited to the condition of artisan employees of this Department, who, while in the exercise of due care, suffer injury or death through the negligence of the Government. In such case the employee, and those dependent upon him, are without remedy, either at common law or under any statute.

An injury which destroys or impairs the capacity to work of a man who works with his hands is an overwhelming calamity to himself and those dependent upon him. His death often throws upon the world a helpless family. It is but simple justice that in this respect a Government artisan should be placed upon an equality with his brother in private employment.

The experience of the past year has strengthened my conviction that this omission in our law ought to be cured by legislation, and that artisan employees of this Department injured without fault of their own should be afforded relief.

NAVAL STATION IN THE PHILIPPINES.

Although it is almost five years since we acquired the Philippine Islands, no steps have been taken to establish a naval base there. We have in Asiatic waters a large fleet, comprising not only smaller vessels but cruisers and battle ships. There is no naval base at present nearer than Puget Sound or San Francisco Bay. In time of universal peace it is possible to repair our ships in the dockyards at Hongkong and in Japan, and to transport without molestation stores and supplies to eastern waters. If we were at war with any power these facilities for repairs would not be available, and the possibility of furnishing stores and supplies would be greatly lessened. If other powers were at war in those waters, it would be difficult for us to procure the necessary facilities for the repair of our ships.

The modern vessel of war is a complicated mechanism, frequently requiring repairs, and, at comparatively short intervals, a general overhauling. Without a sufficient naval base of our own in Asiatic waters, the position of our fleet there would be untenable. The question of providing a proper naval base in these waters therefore becomes one fit for the early attention of Congress. Only two places have been seriously considered—Cavite, in Manila Bay, and Olongapo, in Subig Bay. While there are other harbors in the Philippines much better adapted for the uses of a naval base than Cavite, it may be assumed that the base would be established either in Manila Bay or at some point not far distant.

Both at Cavite and at Olongapo there are the beginnings of a naval base. Spain, while in possession of the Philippines, had determined that Subig Bay was the place best suited in those islands for a naval base, and had constructed certain buildings designed for the purpose, reclaimed land, and built sea walls. We must, at an early date, determine whether our naval base shall be in Manila Bay or in Subig Bay. At one or the other of these places there should be, in the near future, a station where there can be abundant naval stores of all kinds, facilities for docking and repairs, and effective protection by fortification.

The question is, at which of these places are these essential points best combined? Naval opinion, so far as it has reached the Department, unanimously favors Subig Bay. The commanders in chief on the Asiatic Station and two boards of naval officers appointed for the consideration of the question agree that our naval base should be within Subig Bay. To the weight of these opinions there is added the high authority of the Admiral of the Navy, whose views have been frequently and earnestly expressed. It would seem as if this body of opinion ought to be deemed conclusive. I know of no other military question upon which such unanimity exists.

The mouth of Subig Bay is 30 miles north of Manila Bay. In its entrance lies an island which commands the channels on either side, and with a minimum of fortification makes the bay impregnable. There is ample area of anchorage. Within the bay is an indentation which is the harbor of Olongapo. In this harbor there is a place suited for the reception of the steel floating dry dock now under construction and destined for the Philippines. Comparatively little dredging would be needed to prepare the location for this dock. A fleet thus impregnably based upon Subig Bay would constitute a more effective protection to the city of Manila than any base in Manila Bay would afford. On the other hand, Cavite possesses many disqualifications as a naval base. The entrance to Manila Bay is wide. Its effective protection by fortification is difficult, if not impracticable, and the station at Cavite is within reach of gun fire from the open water of the bay. Breakwaters would have to be constructed and dredging of the most extensive and costly character would be required. In view of these facts, the highest national considerations appear to require the selection of Subig Bay as a base, its early fortification, the storing therein of naval supplies, and the speedy development of dockyard facilities at Olongapo.

NAVAL STATIONS IN THE ISLAND OF CUBA.

The act making appropriations for the support of the Army for the fiscal year ending June 30, 1902, approved March 2, 1901, contains certain provisions, authorizing the President to discontinue the military government of the United States then in power in the island and transfer its government and control to its people, and defining the future relations of the United States with Cuba. These provisions, commonly known as the Platt amendment, had as the seventh article the following:

> That to enable the United States to maintain the independence of Cuba, and to protect the people thereof, as well as for its own defense, the government of Cuba will sell or lease to the United States lands necessary for coaling or naval stations at certain specified points, to be agreed upon with the President of the United States.

The same article appears as article 7 of the constitution of the Republic of Cuba, promulgated May 20, 1902. In pursuance of this article an agreement was entered into between the United States and Cuba, the ratifications of which were exchanged on October 6, 1903. A copy of this agreement is appended to this report. By its terms Cuba leases to the United States for the purpose of a coaling and naval station certain areas of land and water therein specified, at Guantanamo, on the eastern part of the southern coast of Cuba, and at Bahia Honda, on the western part of the northern coast of Cuba. The ultimate sovereignty of Cuba is preserved, but complete jurisdic-

tion and control during the period of its occupation is given to the United States. The United States also has the right to acquire by condemnation private property within the leased areas upon the payment of full compensation to the owners. The amount of the rent reserved was left for future determination.

By this agreement the rental to be paid by the United States was fixed at $2,000 per annum. It was agreed that Cuba should acquire the private property within the areas covered by the lease and that the purchase price thereof should be furnished by the United States and credited to the United States as advance payment upon the rent reserved. A joint commission of the two Governments has surveyed the boundaries of the land at Guantanamo conveyed in the original lease, has fixed them to the satisfaction of both Governments, and marked them by permanent monuments. The land at Guantanamo, with the exception of the islands in the bay, conveyed by the lease is in private ownership. It is 18,530.1 acres in extent. Its value, with the buildings thereon, has been appraised by the Cuban Commission at $137,421.71.

The Cuban Government has acquired 6,183.7 acres and is negotiating for the purchase of the remainder, with prospect of a successful result at an early day. Possession of the waters, islands, and such portion of the mainland as may have been acquired by Cuba will soon be taken. It is proposed, if Congress consents by making appropriations, to develop at this point a naval station of considerable strength. It is supposed that such fortifications as may be needed will be undertaken by the Army. The importance of beginning the work of development at once and continuing with reasonable speed to its completion is plain.

No work at Bahia Honda beyond the survey of the waters and the marking of the boundaries is under contemplation by this Department at the present time.

THE CARIBBEAN SQUADRON.

As stated in my annual report for 1902, the Department last year found the constant presence of our ships in the West Indies and the Caribbean to be necessary in order properly to discharge our duties of maintaining order by moral influence where disturbed conditions existed, of protecting the interests of our own citizens and those of other countries committed to our care, and of preserving and fulfilling the treaty obligations of the Government. The liberation of Cuba, the acquisition of Porto Rico, the establishment of the naval stations at Culebra, San Juan, and Guantanamo, and the anticipated construction by the United States of the isthmian ship canal conspire to increase the importance of the Caribbean as a sphere of naval as well as commercial activity.

In recognition of these considerations important maneuvers were last year conducted in Caribbean waters by the North Atlantic Fleet, under the immediate supervision of the Admiral of the Navy. Later, a separate division of the North Atlantic Fleet, known as the Caribbean division, was established, and finally the Caribbean squadron as a separate and permanent organization was created. The squadron will have ultimately as its base the naval station at Guantanamo, and will be composed of swift cruisers and light vessels able to proceed speedily to points where the protection of American interests or the fulfillment of American duties is demanded. This squadron has already proved the necessity of its existence and will, it is believed, become still more important in the future. A coast squadron was organized May 19, 1903, and at present is composed of the *Texas*, *Indiana*, *Arkansas*, *Nevada*, *Florida*, and a flotilla of five destroyers. The duty of this squadron is preeminently that of coast defense, but it will constitute a reserve force ready in case of need to cooperate with the principal fleet in the West Indies.

ADDITIONS TO THE NAVY.

The effective force of the Navy was increased during the fiscal year by the addition of twenty-five new vessels. These vessels were the battle ship *Maine;* the four harbor-defense monitors, *Arkansas*, *Nevada*, *Florida*, and *Wyoming;* twelve torpedo-boat destroyers; one torpedo boat, and seven submarine boats. Since the close of the fiscal year, and therefore not included in this enumeration, additional vessels have been accepted as follows: One protected cruiser, the *Cleveland*, October 29; one torpedo-boat destroyer, the *Macdonough*, July 3. Aside from the foregoing vessels which were built for the Navy, there were transferred from the Army the transports *Hancock* and *Lawton*, which have been fitted up for use as receiving ships, and the hospital ship *Relief;* and from the Treasury Department the schooner *Eagre*.

During the fiscal year two vessels were dropped from the Navy, the iron tug *Leyden*, which was wrecked, and the iron paddle-wheel gunboat *Monocacy*, condemned as unserviceable, and later sold.

TRAINING SHIPS.

Congress, by act approved March 3, 1903, authorized the construction of three vessels to be propelled by sail only and to be used to give landsmen and apprentices training in seamanship. Of these, the *Cumberland* and *Intrepid*, steel vessels, to cost not exceeding $370,000 each, are under construction, respectively, at the Boston and the Mare Island navy-yards, while the *Boxer*, a wooden brig, to cost not exceeding $50,000, is to be built at the navy-yard, Portsmouth, N. H.

VESSELS UNDER CONSTRUCTION.

In my last annual report reference was made to the fact that the general progress of work upon vessels under construction by contract, particularly those of the larger class, had not been satisfactory, all such vessels being in arrears in periods varying from four to twenty-nine months. Finding that these conditions did not materially improve, the Department in February last called for a report on the subject, and as the result of the investigation then made, measures have been taken to eliminate, as far as practicable, such of the several concurrent causes of delay as are within the Department's control. To this end steps were taken to secure:

(1) *The preparation hereafter of adequate plans before awarding contract.*—This, while causing some delay in beginning work on new vessels authorized, will facilitate their early completion.

(2) *The avoidance of changes in the disposition of armor, armament, or details of design, after award of contract.*—Such changes necessarily occasion delays for which contractors are not responsible. Wherever practicable, therefore, original plans should remain undisturbed; but so rapid has been the development of naval construction in recent years that if no changes were made in the original plans some vessels would, in important features, become obsolete before completion. By way of illustration, it may be said that the plans of a battle ship designed more than a year ago would probably have contained no equipment for wireless telegraphy. To-day this system of communication is in commercial use upon a considerable number of the trans-Atlantic liners, and it is believed that suitable masts and apparatus for the sending of intelligence by this method must hereafter be made a part of the equipment of the larger vessels of the Navy. Notwithstanding, however, the necessity of following, by appropriate modifications of design, all significant advancements in naval construction, it is, nevertheless, deemed important to reduce as far as may be the number of changes made after award of contract.

(3) *Armor and armament.*—The slow delivery of armor, heretofore a fruitful source of delay, will probably not prove to be such in the immediate future. There is now on hand in shipyards, in advance of the needs of builders, a very considerable supply of armor. The item of ordnance, however, remains a serious question. The ordnance establishments of the Government, working to their full capacity, are incapable of promptly supplying the guns soon to be required by the seven battle ships and armored cruisers and the three protected cruisers of large size now under construction.

(4) *Inspection.*—It is not desirable to relax the rigidity of inspection of the plans or the material and work entering into the construction

of naval vessels. Instructions have, however, been given by which inspecting officers and contractors have been kept alive to the necessity of avoiding delays from irregular or unsystematic inspection. The official reports show that during the past fiscal year 250,720,754 pounds of steel material were inspected as against a total of about 212,242,000 pounds during the previous fiscal year.

It is believed that the foregoing causes of delay, with the exception of the item of ordnance, have been minimized, and that if adequate provision is made to arm the vessels when ready for their armament, delays from the causes above enumerated, all of which are more or less under the control of the Government, will not hereafter prove serious. Delays are, however, due also to circumstances not directly, if at all, within departmental control, such as—

(5) *Dilatory deliveries of steel and other structural materials by subcontractors.*—On all vessels contracted for since and including the year 1898, when a phenomenal demand for steel arose which has since continued, delays arising from difficulty in obtaining this material have assumed great importance; and this is now the most serious obstacle affecting the hull construction of naval vessels, whether built by contractors or by the Government.

(6) *Lack of training and experience in the technical staff of contractors undertaking for the first time to build naval vessels.*—This difficulty, incidental to the method of awarding contracts upon open competition, is naturally disappearing as the several shipbuilding firms successfully entering the field equip themselves with a trained force.

(7) *Skilled labor.*—Particularly since the year 1898, the inadequate supply of skilled workmen has caused embarrassment. This is a difficulty which the contractors have not been able successfully to remedy by the offer of higher wages, inasmuch as laborers in sufficient number possessing the skill requisite to perform the work required in naval construction are not to be had, and a trained force must, therefore, in each case, be developed.

Notwithstanding the youth of the steel shipbuilding industry in this country, and in spite of the obstacles above enumerated, and without making allowance for strikes or other interruptions beyond the control of the contractor or the Government, the actual average time consumed in the construction of a battle ship, for example, is not believed to be materially greater in the United States than it is in foreign countries where the best results have been obtained. From date of contract to date of first commission, in the case of the English battle ship *Russell*, four years and one month was consumed, and in the case of the German battle ship *Wittelsbach*, now building, more than that length of time has elapsed. The ten battle ships heretofore built for our Navy were constructed within the average period of four years and eight months. When due allowance is made for inherent difficulties, this is a result

creditable alike to the officers charged with the duty of designing and constructing and to the shipbuilding establishments of the country.

At the close of the last calendar year work on the cruiser *Galveston*, building at Richmond, Va., was suspended; the contract was declared forfeited, and the vessel was taken to the navy-yard, Norfolk, for completion. Work on the cruiser *Chattanooga* and the torpedo boats *Nicholson* and *O'Brien* was interrupted by the closing of the works of the Crescent shipyard, at Elizabeth, N. J., June 18, 1903, and these vessels have since been taken to the navy-yard, New York, where they will be completed by the Government. In all such cases the work of completion is done at the contractor's expense.

REPAIRING SHIPS IN COMMISSION.

The mobility and consequent efficiency of the North Atlantic Fleet particularly, and of naval vessels everywhere to a greater or less degree, has heretofore been impaired by the length of time spent at navy-yards. Frequent visits to navy-yards for repairs and long delays there are objectionable. There is nearly always something about the complicated mechanism of a naval vessel that needs attention, and when at a navy-yard the temptation to take advantage of the opportunity to make and continue repairs is natural. As a consequence, items of minor repairs may detain a cruiser or a battle ship in enforced inactivity for a considerable time, to the prejudice of the efficiency of the fleet.

During the twelve months ending July 1, 1903, the time spent at navy-yards for repairs by vessels of the North Atlantic Fleet was as follows: The *Alabama*, 133 days, or about 36 per cent of the entire time; *Kearsarge*, 104 days, or about 28 per cent; *Indiana*, 102 days, or about 28 per cent; *Massachusetts*, 97 days, or about 27 per cent; *Texas* (in commission from November 3, 1902, only), 48 days, or about 20 per cent; *Olympia*, 54 days, or about 15 per cent.

The regulations have heretofore required docking, cleaning, and painting and the examination of all outboard valves at least once in six months, when practicable, and have prescribed that under no circumstances should more than nine months elapse without such docking and examination. After obtaining an expression of the views of the Bureaus of Navigation and Construction and Repair in the matter, the Department has directed that hereafter the principal vessels of the North Atlantic Squadron shall not be required to visit a navy-yard for docking or repairs, under ordinary circumstances, more than once a year. While this order was issued with respect particularly to the North Atlantic Fleet, it is understood to apply equally to all vessels of the Navy, and it is believed to be a decided step not only in the direction of efficiency, but of economy as well.

STEAM TURBINES.

The Bureau of Steam Engineering is giving attention to the question of installing steam turbines in certain classes of naval vessels. That there has been marked improvement recently in the efficiency and endurance of the turbine is shown by its successful introduction into various classes of steamers of the mercantile marine, as well as by the fact that the engineer experts of the principal naval powers are endeavoring to substitute this form of motor for fast reciprocating engines in torpedo boats, destroyers, and small cruisers. The efficiency and endurance of machinery is increased by the use of a propelling motor which not only reduces vibration and lessens liability to impairment, but requires less care and adjustment in its maintenance, and can be operated by fewer men; and when such a motor offers at the same time remarkable possibilities in the item of speed, its importance is obvious.

While the installation of marine turbines involves no radical changes in the general arrangement of the motive plant, the use of this form of engine in naval vessels presents difficulties growing out of limitations as to weight and the structural arrangement of a vessel of war.

Turbine development represents the distinct and special advance that has been made in naval engineering during the past few years. Great Britain, Germany, and France are preparing to install turbine motors in naval vessels. In order that our Navy may participate in the advantages attending the rapid and efficient development of this type of motor, the question of authorizing the equipment of one or more vessels therewith is commended to consideration.

COAL.

A total of 487,036 tons of coal, at a cost of $2,435,168.37, an average of about $5 per ton, was purchased for the use of the Navy at home and abroad during the past year. The amount of coal actually used was 27 per cent greater than during the preceding year, while its cost was 16 per cent less per ton. The relative amount of foreign coal used decreased from 23 to 21 per cent of the entire coal consumption.

During the great stringency in the coal market last year vessels of the Navy were at no time hampered in their movements for lack of coal, nor were exorbitant prices paid therefor.

The Bureau of Equipment reports 26 coaling stations as "built, building, or projected." No new coaling stations were authorized by the Department during the year. Attention is invited to maps appearing in connection with the report of the Bureau, showing graphically the coaling depots of the United States, built or authorized, as compared with those of Great Britain.

ELECTRICAL APPLIANCES.

A marked feature of recent construction is the widening sphere of usefulness, both at naval stations and on shipboard, of electrical appliances. The Bureau of Equipment reports that a total of $589,801.35 was expended during the year upon electrical appliances. The auxiliary service on board ships of war now includes, among other items, ventilation by electrically actuated fans; the closing of water-tight doors by electrically operated mechanism, with distant control; electrical steering apparatus; electrical devices for handling boats; portable searchlights for use at naval stations and in connection with coast defense and advanced naval bases; and a new system of battery fire control, by which the guns of the larger vessels are divided into groups, each group including guns of practically the same nature and having the same arc of fire.

WIRELESS TELEGRAPHY.

On the 27th of March last, as a result of investigations made by a board of officers appointed to investigate the performance of a number of systems of wireless telegraphic apparatus, twenty sets of the pattern recommended were purchased for the use of the Navy. During the summer the following ships and shore stations were fully equipped with working instruments and operators: *Baltimore*, *Kearsarge*, *Illinois*, *Olympia*, *Prairie*, *Texas*, and *Topeka*, and the shore stations at Cape Elizabeth, Me., Newport, R. I., Montauk Point, N. Y., navy-yard, New York, and the Highlands, Navesink, N. J. The balance of the sets on hand will be supplied to the U. S. S. *Maine* and *Minneapolis*, and at the following shore stations:

Navy-yard, Portsmouth, N. H.	Cape Henry, Va.
Navy-yard, Boston, Mass.	Key West, Fla.
Thatchers Island, Cape Ann, Mass.	Dry Tortugas, Fla.
Highland Light, Cape Cod, Mass.	Pensacola, Fla.

During the maneuvers off the coast of Maine last summer the U. S. S. *Olympia*, acting as scout, was able by wireless telegraphy to communicate to the commander in chief on board the *Kearsarge* information respecting the whereabouts of the vessels simulating an enemy's squadron in time to defeat the attack under the rules of the maneuvers. In general, the use of the apparatus during the summer drills was successful, and the commander in chief recommends that all large ships of the Navy be equipped with wireless telegraphic appliances without delay.

OCEAN AND LAKE SURVEYS.

During the past year 23 ships of the Navy have been engaged from time to time in the work of correcting errors and supplying defects in hydrographic charts of American waters. The importance of this duty is emphasized by the fact that recently the *Brooklyn*, the *Olympia*, and one or two smaller vessels of the Navy have suffered damage, and two years ago a valuable cruiser, the *Charleston*, was totally lost, by striking upon uncharted reefs.

DERELICTS.

Reports on file in the office of the Hydographer of the Navy show that a total of 1,628 floating derelicts were observed in the North Atlantic during the period of seven years covered by information tabulated; that the average flotation period of these wrecks was thirty days each; and that of the total number so reported, 482 were identified by name and their tracks plotted for the use of mariners. It further appears that during the past ten years 42 collisions with derelicts or floating wreckage were reported to have occurred in the North Atlantic alone, and that since the beginning of this calendar year four such collisions have occurred, one vessel suffering from this cause having been towed into port disabled, two others having lost propeller blades, and the fourth having sustained other damage.

The possibility of serious disaster from collision with derelicts may seem remote, but in view of the increase in number and speed of ocean liners and the multiplication of vessels of all kinds under sail and steam in the lanes of ocean travel, it would seem to be the duty of the maritime powers to adopt some systematic and effective means of doing away with this apparently unnecessary peril of the sea. The American Navy has done and will continue to do whatever may be practicable in this direction, and in pursuance of this policy during the past year 11 wrecks, derelicts, or obstructions were reported by the Hydrographic Office. Of these 7 were located and either blown up or otherwise rendered harmless. But derelicts have no nationality, and the duty of removing them from the highways of the sea is one resting alike upon all maritime nations whose shipping may be endangered by them. In recognition of this principle Congress, October 31, 1893 (28 Stats., p. 13), passed the following "Joint resolution for the reporting, marking, and removal of derelicts:"

Resolved, etc., That the President of the United States be, and he is hereby, authorized to make with the several governments interested in the navigation of the north Atlantic Ocean an international agreement providing for the reporting, marking, and removal of dangerous wrecks, derelicts, and other menaces to navigation in the north Atlantic Ocean outside the coast waters of the respective countries bordering thereon.

In pursuance of the resolution above quoted, efforts were made to enlist the cooperation of other governments in the matter, and the subject was considered by a joint committee of the British Admiralty and board of trade. This, however, did not bring about definite results, and the fact remains that while at this date the approximate position of a considerable number of these drifting wrecks, which carry no lights and sound no signals in thick weather, is known and charted, no concerted patrol or systematic effort to sink or destroy them has been undertaken. The work of the Navy in this direction is necessarily incidental, subsidiary to other duties, and ordinarily is confined to the neighborhood of our own coasts.

It is possible that a renewal of negotiations with the governments of other maritime nations might result in joint action on this subject. In the meantime, our Government might wisely take the initiative by providing one properly equipped vessel to patrol the trans-Atlantic lanes from our coast to the eastern limit of the Georges Bank.

THE PACIFIC CABLE.

Utilizing surveys made by the Navy, the Commercial Pacific Cable Company has successfully established telegraphic communication with the Far East, with relay stations wholly within American territory. Land has been leased to this company for cable stations at the Midway Islands and at Guam. Attention is invited to the desirability of providing means of defense at these stations.

ORDNANCE.

The Chief of the Bureau of Ordnance reports that "all guns afloat are in good condition, and all vessels in commission are fully equipped and ready for immediate service." The armament for the battle ships *Maine* and *Missouri*, and the four harbor-defense monitors *Arkansas*, *Florida*, *Nevada*, and *Wyoming* has been completed and installed on board, and that for the *Ohio* is in readiness for installation. The armament for the five battle ships of the *Virginia* class and that for the six armored cruisers of the *Pennsylvania* class is well in hand. All of the main battery guns of the seven battle ships and two armored cruisers last authorized will be of nickel steel and double-tubed or reinforced to the muzzle.

While the commissioning of the vessels above mentioned which are nearing completion will not be delayed for want of armament, it is otherwise with the remaining vessels now under construction, work upon which is less advanced, and those authorized, the construction of

which is about to be commenced. It requires practically as much time to manufacture the armament of a battle ship as to build the vessel; but work upon the batteries of twelve important vessels authorized, contracted for, or under construction has not yet been begun. The Naval Gun Factory has been working to its full capacity, employing two and occasionally three successive shifts of men and keeping its principal tools in almost constant operation day and night during the past year. Notwithstanding this fact, the output of guns falls short of the requirements of the service. In January, 1907, the last of the ships authorized by Congress will be due. It is computed that at that time, with the present capacity of the gun factory, "the delivery of the last VIII-inch guns for these vessels will be about eight years behind the date of completion of the last vessel."

The Department, in April last, appointed a board to investigate and report upon this matter. The board, after a careful inquiry, recommended an enlargement of the gun factory sufficient to meet current demands. The Department, however, concurs with the Chief of the Bureau of Ordnance in the conclusion that the judicious course to pursue is to get as much work as practicable out of the gun factory as it is, with such additions and improvements as are absolutely necessary to maintain its maximum efficiency; to seek such aid as can be given by the United States Army gun factories at Watervliet; and, as a last resort, to contract, as far as it may be found prudent so to do, with private establishments capable of doing work of this character. It is believed that by the latter expedient the gun factory may be relieved of a considerable amount of work upon accessories, such as gun mounts and the like, which can be built, in whole or in part, at private establishments; and that by resorting to all three measures of relief the necessary armament for the new vessels can be provided as it will be required, without costly enlargement of the plant at the Washington Navy-Yard.

GUNNERY.

In order that the gunners of the Navy may become accustomed to firing under actual battle conditions, and for the further purpose of thoroughly testing ordnance equipment at stated intervals, it has been determined that hereafter target practice shall as a rule be conducted with full charges of smokeless powder and forged-steel shell. The allowance of ammunition for target practice has been revised, and it has been prescribed that each vessel shall, under ordinary circumstances, engage in target practice twice, and vessels newly commissioned three times, each year.

MARKSMANSHIP.

During the past year marksmanship in the Navy has improved to a gratifying extent. The control of all gunnery training has been centralized under the Bureau of Navigation and rendered uniform throughout the service.

This centralization of control and uniformity in the manner of carrying out target practices has resulted in placing the ships in practical competition with each other in the matter of straight shooting, and our marked improvement is due, in part at least, to this cause. Competition is the life of all games and is essential to skill in any sport. It is the incentive for all athletic training. We have simply utilized these human traits in the training of our gun pointers and gun crews. Gun crews now are practically teams, and target practices are contests between them.

The immediate and general improvement in marksmanship due to this centralization of the control of gunnery training has been largely hastened by the diligent assistance of the commanders in chief of the various fleets and squadrons and the commanding officers of the various vessels in zealously carrying out the instructions of the Department.

The interest and enthusiasm displayed in the present system of training has been universal with both officers and men throughout the service and the spirit of competition has been marked. The most commendable energy and zeal has been displayed by gunnery and division officers in developing the team work of their gun crews and rectifying certain minor defects in the ordnance material which were discovered by the improved skill in gunnery. Special credit is due turret officers for the very marked decrease in the loading interval of heavy guns.

Our present great gun target is a piece of canvas 17 feet high by 21 feet wide, the range is nearly a mile, and only holes in the canvas count as hits. Guns are fired singly, and are allowed a certain time in which to make all the hits they can, and the gun making the most hits wins. Percentages are not counted in determining merit. A pointer who makes 6 hits out of 8 shots in a minute (or 75 per cent) is better than one who makes 4 hits out of 4 shots in the same period (or 100 per cent), because he makes 50 per cent more hits in the same length of time.

In the preliminary practice held in September of this year the rapidity of fire was probably twice that ever before attained in our service, yet despite this increased rapidity the percentage of hits was also greater than ever before.

As an example of the extent of our increased rapidity, official instructions dated February, 1901, allowed a 13-inch gun 5 minutes

and 20 seconds between shots, whereas an old 13-inch gun of the *Indiana* scored 4 hits in this time in September last, and a more modern 13-inch gun of the *Alabama* scored 4 hits in 3 minutes and 10 seconds. Similarly the interval between shots of a 6-inch rapid-fire gun has been reduced from 40 to about 10 seconds. Improvement in accuracy has been even greater than rapidity in fire.

Three men are trained as pointers at every gun, and two men actually fire every gun, each target practice. Results attained on all stations show a uniformity of improvement. The pointers of the battle-ship squadron of the North Atlantic fleet may be taken as a fair average of the service. The turret gun pointers of that squadron, in September of this year, made an average of 57 per cent of hits, and the average of the 6-inch rapid-fire gun pointers was 61 per cent, while 24 per cent of the turret pointers and 27 per cent of the 6-inch pointers made 100 per cent. It is interesting to note that all of the 224 pointers who fired on the preliminary practice are either citizens or have declared their intention to become citizens. Of them, 76½ per cent were native-born Americans, 15½ per cent were naturalized citizens, and 8 per cent were aliens with intentions declared.

Pointers are now selected regardless of rating, the only quality considered in their selection being ability to shoot. There is a keen spirit of enthusiasm and competition among the men to become pointers, and to encourage and reward them trophies have been offered, for which ships will compete annually. Liberal prizes will be awarded gun crews after each annual record practice, and extra pay will be given to men who qualify as pointers in accordance with the provisions of an Executive order dated July 25, 1903.

Revised small-arm firing regulations have been drawn up and are being published. These follow the general system of the revised small-arm firing regulations of the United States Army. Active steps are being taken to establish ranges at all naval stations, where it is practicable to do so, in order that facilities may be provided to train recruits in small-arms marksmanship. It is not believed that the accuracy of gun fire has reached the standard of excellence which it can and will reach, but the progress is in the right direction and is highly satisfactory.

ARMOR.

The armor manufactories of the United States, in accordance with promise, have added to their facilities, and deliveries amounting to 11,493 tons have been made—a marked increase over any previous year. Armor plates are now tested with capped projectiles. The acceptance tests for armor-piercing projectiles have been made more rigorous, it being now required that they shall, at a prescribed veloc-

ity, perforate unbroken a plate of hard-faced armor equal in thickness to the diameter of the projectile, and then be in a condition for bursting.

DRY DOCKS.

The Chief of the Bureau of Yards and Docks reports that fairly satisfactory progress has been made during the year in the construction of the dry docks at Boston, where the work is now carried on by the surety on the contractor's bond, and at League Island, Pa., but that progress in dock construction at Mare Island has been hindered by difficulties encountered by the contractor in placing a satisfactory cofferdam to exclude the water from the site. The accumulated delays in the construction of the Mare Island dock are deplorable. A private firm has completed and has in operation in San Francisco Bay a concrete dock which was begun after the Mare Island dry dock was contracted for, while even the excavation for our own dock is yet uncompleted. Radical measures to hasten the completion of this dock should and will be taken.

The floating steel dry dock purchased from Spain and transferred from Habana to Pensacola has been extensively repaired and will soon be placed in commission, and the construction under contract of a new floating steel dry dock for use in the Philippines has been commenced, the work being in the hands of the contractor who built successfully the dry dock of the same character now at New Orleans.

NAVAL MEDICAL SCHOOL.

The value of the training received at the naval medical school by the class graduating April 4, 1903, has been shown by the work performed by the members of that class in the active duties of their profession during the few months that have elapsed since they entered thereupon. The chief of the bureau reports that the wisdom and economy of establishing the school in Washington has been demonstrated, the building of the Museum of Hygiene having, with some slight remodeling, proved peculiarly adapted for the purpose of the training school, and it having been found practicable to enlist the cooperation, as instructors, without compensation, of gentlemen prominent in professional, scientific and educational circles, who have delivered lectures and given demonstrations before the classes. The work of the institution has been accomplished with the assignment of but one officer on the active list for duty in connection therewith.

HOSPITAL SHIPS.

The Admiral of the Navy, in his report covering recent maneuvers of the combined fleets of the North Atlantic, South Atlantic, and European stations, states that for a fleet and base bringing together a force of 10,000 men there should be provided a hospital ship. The fleet surgeons of the European Squadron and of the North Atlantic Fleet, and other medical officers of experience, unite in recommending this method of solving the problem of the care of the sick of the force afloat. The Surgeon-General also strongly advocates the addition of hospital ships to the force assembled for drills; calls attention to the fact that though this country has taken the lead heretofore in the consideration of the subject of hospital ships, and was the first to provide them for active operations, it has fallen behind other nations in this respect since the war with Spain, and urges that the construction of two of these vessels be authorized. In this recommendation the Department concurs.

HEALTH OF THE NAVY.

The Chief of the Bureau of Navigation and the Surgeon-General unite in bringing to the attention of the Department the unsanitary conditions arising from the inadequacy in point of capacity of the receiving ships of the service, and the overcrowding of training ships and stations. Recruitment to keep the enlisted force of the Navy up to its authorized strength, will require in future greater facilities for the reception of recruits while in transit to cruising ships than is provided by the present system, and attention is invited to the recommendations of the bureaus that some suitable provision be made to relieve these conditions.

To overcrowding and consequent lack of proper hygienic arrangements on board the receiving ships *Franklin* and *Richmond*, and at the training-station barracks, Newport, is to be attributed an outbreak of diseases of an infectious character during the winter and spring months of this year. Two cases of diphtheria, traceable to this cause, appeared on board the *Buffalo* while she was on her way to Kingston, Jamaica, December 22, 1902, both proving fatal. The 750 men on board this vessel were, as soon as practicable, landed at Port Royal, S. C., and vigorous measures taken to stamp out the disease. The Surgeon-General reports that "in this epidemic * * * the records show but two deaths out of the 137 cases treated, with not a single death after the treatment had begun." Antitoxin was used, and the medical inspector in charge of the epidemic states that "the evidence in favor of the serum is conclusive, and * * * we may indulge in the gratifying belief that many lives have been saved through its instrumentality."

HUMANE SURGICAL WORK.

In the spring of 1903, after an engagement between the government and insurgent troops at Santo Domingo, the establishment on shore by the medical officers of the *Atlanta*, then at that port, of a Red Cross hospital, was found to be absolutely necessary from a humanitarian point of view.

Again, July 21, 1903, at the time of the capture of the city of Bolivar, Venezuela, by the government forces, the medical officer of the U. S. S. *Bancroft*, stationed off that city, was able to render valuable aid to the wounded of both sides, numbers of whom were without medical attention. The commanding officer of the *Bancroft* reports that conspicuous devotion was displayed in this duty, an improvised hospital in a public building being organized and the medical officer personally performing 66 operations, many of them of a grave nature.

GOVERNMENT OF REMOTE NAVAL STATIONS.

Attention is invited to conditions existing in the islands of Tutuila and Guam and the naval station, Guantanamo, Cuba, with respect to civil government. These are all naval stations, and are under the jurisdiction of the Navy Department. In Tutuila and Guam the senior naval officer not only acts as commandant but is at present also charged with the duties and responsibilities of a military governor, and in the latter capacity necessarily exercises plenary powers. So far as the naval forces attached to these stations are concerned the Department has sufficient authority, and no further legislation is considered necessary, except that the commandants should be empowered to convene general courts-martial in order that tedious delays, alike prejudicial to persons accused and the interests of the service, on the one hand, and on the other failure of justice, may be avoided. Upon each of these naval stations, however, there are native residents in numbers more or less considerable, and a growing population composed of citizens of this and other countries.

The punishment of native or other civilian residents by court-martial or otherwise under naval laws and regulations, for offenses against civil authority, if admissible in such a case as this, is not appropriate, and continued procedure under preexisting laws and customs, native, Spanish or Cuban, as the case may be, is a temporary and clumsy expedient, particularly objectionable in criminal cases as being in some features repugnant to the spirit of our institutions. Inasmuch, however, as no system of local administration has been provided by Congress resort must be had to preexisting local laws and customs, to naval law, or to such methods of procedure as the naval governor or higher executive authority may ordain and establish.

It is recommended that for the better government of persons subject to the laws and discipline of the Navy, the President, whenever he shall deem such power necessary, may authorize commandants at remote naval stations to convene general courts-martial; that some simple system of civil government be provided for the islands of Tutuila and Guam, with appeal in proper cases to courts of the United States, and that like provision be made for the satisfactory government, on the civil side, of the naval station at Guantanamo, within which concession it is understood a considerable number of persons, citizens of Cuba and others, will remain as permanent or temporary residents. It is suggested that this station and the Midway islands might appropriately for certain purposes be attached to judicial districts of the United States, in substantially the manner adopted in the case of the guano islands.

That no serious conflict of authority has arisen in the administration of the island of Guam, for example, is creditable alike to the people of the island and to the officers who have successively administered its affairs; but that such conditions have been suffered to continue since 1898, during which period this considerable island has been without regularly organized government, is a fact earnestly commended to attention.

It may be added that because of the absence of administrative government and for want of appropriations available therefor, schools in this island have been neglected and are now practically abandoned. This condition ought not to exist within our jurisdiction.

LEGISLATION RECOMMENDED.

The Judge-Advocate-General recommends the enactment of legislation providing for the enforcement of the attendance of civilian witnesses before naval courts, the use of depositions before such courts, the organization of examining and retiring boards, the convening of general courts-martial in the island possessions of the United States, the acquisition on the part of the Government of improvements and devices patented by naval officers, sales from pay department stores to civilian employees at naval stations beyond the continental limits of the United States and in Alaska, and the releasing and restoration to the public domain of certain timber reservations no longer required for naval purposes.

NAVAL PRISONS.

Under appropriation made at the last session of Congress, a new naval prison is in process of construction on Seaveys Island, Maine. This prison is designed to accommodate 300 persons, and its plans admit of ready expansion if necessary.

A distinguishing uniform for naval prisoners has been adopted, of such a character as not to indicate that the men are criminals in the ordinary sense of the term, the men confined in naval prisons having committed military offenses only. Real criminals are sent to Wethersfield, Conn., or San Quentin, Cal. Offenders convicted on the Asiatic Station are confined in the naval prison at Cavite, unless sentenced to hard labor or long terms of confinement, in which cases, on account of climatic conditions, they are brought to the United States.

NAVAL WAR RECORDS.

The continued publication of the Naval War Records presents for the first time in complete and accessible form the operations of the National and Confederate navies, including the construction, equipment, and performances of the first ironclads, as well as the cruisers and torpedo boats; the successful maintenance of a blockade along a coast line nearly 4,000 miles in extent; Confederate privateering upon the high seas; and, particularly, inland blockade and the military control of bays, inlets, great rivers, and other waterways in connection with the operations of land forces.

A clause contained in the act making appropriations for the sundry civil expenses of the Government, approved August 18, 1894 (28 Stat., 403), provides:

> That all military records, such as muster and pay rolls, orders, and reports relating to the personnel or the operations of the armies of the Revolutionary war and of the war of eighteen hundred and twelve, now in any of the Executive Departments, shall be transferred to the Secretary of War to be preserved, indexed, and prepared for publication.

It would seem appropriate, and is recommended, that a like provision be enacted authorizing navy records in the custody of the several Executive Departments to be transferred to the Navy Department for preservation, with a view to their present more ready accessibility and their ultimate publication.

THE MARINE CORPS.

The course of study at the Marine School of Application, Naval Academy, has been revised and enlarged, with the view of fully equipping officers pursuing a course there for any duty which the growing demands of the service may require. Fifteen recently appointed second lieutenants have been ordered to this school.

It is a pleasure to state that during the past year the Marine Corps has on more than one occasion exemplified the traditional readiness of that organization to respond at the shortest notice to calls made upon it for active duty.

NAVAL EXPENDITURES.

The expenditures for the support of the Navy have increased considerably, were during the last fiscal year larger than in any year of our history, except the years 1864 and 1865, and are certain to increase still further. It is interesting to compare the expenditures of the present with those of the past, though no standard of comparison exists which is in all respects satisfactory. As a nation, we are able to possess a Navy of such size and cost as our national interests and duties require. On the other hand, we should not be tempted by the abundance of revenue to increase the Navy beyond our needs, or expend a dollar unnecessarily.

The cost of military protection has frequently been compared with that of insurance upon property. The comparison is not inapt, and has a special significance in considering naval expenditures. I have caused a comparison to be made between the national valuation and naval expenditures. The valuation of the total property of the United States was obtained by taking the figures of Mulhall up to the census of 1850 and then the figures of the census. This gives only the valuation of every tenth year, beginning with 1800. The valuation of the intermediate years is approximately obtained by adding to each year an equal proportion of the decennial increase. The average valuation for each decennial period is thus readily obtained. The naval expenditures can be obtained with absolute accuracy. The expenditures given do not include the cost of the executive establishment. The following table, computed in this manner, shows the percentage of the total property of the United States devoted to the support of the Navy by ten-year periods in the last century. The whole period shows an average annual expenditure of $0.00123 for each dollar of the valuation.

Years.	Average valuation (computed).	Average naval expenditure.	Percentage.
1801–1810	$1,321,245,000	$1,636,732	.00123
1811–1820	1,732,470,000	4,675,502	.00269
1821–1830	2,335,930,000	3,295,086	.00141
1831–1840	3,301,915,000	5,041,751	.00152
1841–1850	5,637,199,000	7,237,696	.00129
1851–1860	12,198,889,800	11,996,977	.00098
1861–1870	23,718,414,100	46,848,730	.00197
1871–1880	36,983,933,100	19,658,796	.00053
1881–1890	54,959,300,050	16,867,629	.00030
1890–1900	81,131,690,950	38,635,164	.00047

General average, $0.00123.

The expenditures for the fiscal year 1903 were $82,618,034. By reasonable approximation, the valuation for that year was $106,239,266,872. Thus there was expended for this year for each dollar of the national valuation $0.00077. If the average of the last century had been reached, the expenditures would have been $130,674,298.25.

INCREASE OF SHIPS.

Careful consideration given during the past year to the question of the continuance of naval construction confirms me in the views expressed in my last annual report that the upbuilding of the Navy should be continued by the annual authorization of new vessels. The advice of the General Board and of the Board on Construction has been sought and received, and will be submitted to the committees of Congress.

The steady growth of the Navy has called for the best energies of all who are concerned in its administration and operation. The activity which has been manifested throughout the naval service has undoubtedly made large drafts upon the time and abilities of our officers and the endurance of our ships. Both officers and ships are consumed by their uses, though thus they have each escaped the deterioration which results from inactivity. On the other hand, I am advised, and believe it to be true, that our constantly increasing number of enlisted men are becoming well trained for their duties, that our hard-working officers are keen, intelligent, and zealous, that our squadrons are increasing in mobility, and that in every way the efficiency of the Navy as a whole has been promoted, so that, although not large in comparison with other navies, the Navy justifies the support of Congress and the confidence of the country.

WILLIAM H. MOODY,
Secretary of the Navy.

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PAPERS

ACCOMPANYING

THE REPORT OF THE SECRETARY OF THE NAVY.

REPORT OF THE CHIEF OF THE BUREAU OF YARDS AND DOCKS.

DEPARTMENT OF THE NAVY,
BUREAU OF YARDS AND DOCKS,
Washington, D. C., October 1, 1903.

In obedience to the instructions contained in the Department's letter of July 11, 1903, I have the honor to submit a report of the operations of the Bureau of Yards and Docks for the fiscal year ended June 30, 1903, together with estimates for the fiscal year ending June 30, 1905.

The expenditures during the year from appropriations under the cognizance of the Bureau aggregated $6,604,505.67, of which $5,077,020.06 was for works of improvement for which specific appropriation was made by Congress. The remainder, $1,527,485.61, was applied to the maintenance and repair of the navy-yards and stations, for the civil establishment, contingencies, etc., as follows:

The repairs and preservation of the yards and stations covering the outlays upon the real estate cost $510,679.88; their maintenance covering outlays for and upon personal property, pay of watchmen, water taxes, etc., cost $679,638.92; the civil establishment cost $104,382.53, and contingent and other expenses amounted to $232,784.28.

Various balances of appropriations remaining unexpended, and aggregating $33,386.92, were turned into the surplus fund of the Treasury.

The operations under the cognizance of the Bureau covered the wide range of objects of which it has charge, including floating and graving dry docks, pumping, electric light, heating and waterworks, railroads, sewers, telephone and telegraph lines, sidewalks and streets, wharves, sea walls, dredging, buildings of varied classes and sizes, purchases of land, etc. The large number of objects and their miscellaneous character required the attention of the Bureau and its force to many matters of detail involving much careful study and consideration.

During the year 71 contracts were made by the Bureau, involving obligations amounting to $7,211,583. The efficiency of the navy-yards and stations has been materially increased by the improvements added during the year, although the increase has hardly kept pace with the rapid growth of the navy afloat, and it is hoped more liberal appropriations may be secured, both for the construction of new works and the maintenance and repair of existing improvements.

The new dry docks at Portsmouth, Boston, and League Island have not progressed in an entirely satisfactory manner, while the one at Mare Island has hardly gone forward at all, owing to the difficulty the contractors experienced in placing a satisfactory cofferdam to exclude the water from the site. At Portsmouth progress has been fair, and, barring accidents, should go forward to completion during the current

fiscal year. At Boston fair progress has also been made since the work was taken in hand by the surety on the contractor's bond, August 20, 1902, and at League Island good work has been done under the contract made for completing the work after the original contract was annulled December 29, 1902, and the indications are that the work will be pushed forward to the earliest possible completion. The new dock at Charleston, S. C., has been delayed somewhat, owing to lack of transportation facilities to the yard and other causes, but the contractors are being urged along, and the Bureau hopes to secure the completion of this dock within the contract time. The floating steel dock transferred from Habana to Pensacola has been extensively repaired and will soon be ready to be put in commission. The construction of the steel floating dry dock authorized for the naval station, Cavite, P. I., has commenced under contract, and there is every indication that the progress will be satisfactory, the work being in the hands of the contractors who constructed the steel floating dock now located at the naval station, New Orleans.

At Washington, Key West, and New Orleans additional land has been purchased for extending the yards at those points. Several of the yards, especially New York and Norfolk, are becoming congested, owing to their limited area, and some action looking to their relief must soon be taken or their efficiency will be restricted.

At the outlying island stations but little has been done by way of permanent improvements pending a determination of the location of the various permanent stations.

The losses by fire during the year have been small to a very gratifying degree, and no serious accidents have occurred involving the lives of workmen or the loss of Government property, excepting an earthquake at Guam, by which considerable damage was done to property.

The Bureau's work was delayed to a considerable extent by the extreme difficulty in obtaining structural steel, the condition of the market having been such that the mills would not accept orders for quick delivery. Delay in the preparation of plans and specifications has also been caused by difficulty in securing the services of a sufficient number of competent draftsmen, the general prosperity of the country and the extensive private building operations providing such inducements that the salaries offered by the Government proved no attraction to many first-class men.

NAVAL STATION, CAVITE, P. I.

Expenditures for labor and material during the fiscal year were as follows:

Yard improvements	$7,605.34
Emergency fund	49,830.33
Repairs and preservation	69,799.94
Maintenance	48,711.83
Civil establishment	2,287.50
Contingent	241.50
Total	178,476.44

YARD IMPROVEMENTS.

Fitting up coal sheds, act July 1, 1902, $7,500.—Work upon this object was begun in September, 1902. At the close of the fiscal year a small portion of the roof remained to be placed and the building was

nearly ready for the laying of the concrete floor. Delay was experienced in securing the necessary material and the necessary skilled labor. During the year $6,002.51 was expended.

Fire-protection system and apparatus, act July 1, 1902, $12,000.—Under this appropriation a fire engine and appurtenances were purchased in the United States and shipped to the station. Owing to the long time necessary for transportation, the engine has but recently arrived at the station. The cost of the engine was $5,275.

Railroad-system improvements and extensions, act July 1, 1902, $9,000.—Under this appropriation requisitions were prepared and approved for railroad material and for 10 four-wheel platform cars to be purchased in the United States and shipped to the station.

Tools and appliances for Yards and Docks, act July 1, 1902, $7,000.—Under this appropriation requisitions have been made for 14 machine tools, 1 motor, and 1,000 feet of electric cable, estimated to cost $4,006. Owing to the delay incident to advertising for proposals and preparing articles for shipment, these tools have not yet been delivered at the station.

Steel floating dry dock, act July 1, 1902, and March 3, 1903, to cost $1,225,000.—Under this appropriation plans and specifications were prepared and advertisement issued for proposals. The bids were opened March 4, 1903, three bids being received. Upon consideration of the plans submitted by the bidders, supplementing the Government plans, the bid of the Maryland Steel Company, of Sparrow Point, Md. (builders of the New Orleans floating dry dock), was accepted, the contract price being $1,124,000. The dock is designed to lift 16,000 tons, and is to be delivered to the Government at Sandy Point, in the Chesapeake Bay, twenty-seven calendar months from the date of the contract, which was April 20, 1903. Work began immediately upon the execution of the contract, and the indications are that it will progress in a satisfactory manner.

Equipment building No. 38, emergency fund, 1902, $30,000, allotted June 21, 1901.—Contract was made June 5, 1902, for this building, to cost $28,987, and the building was completed March 31, 1903. Difficulty in securing suitable materials and competent labor caused delay in carrying on this work.

Timber shed and sawmill, emergency fund, 1901, 1902, and 1903, allotments December 28, 1900, September 26, 1901, and July 30, 1902, $16,758.39.—This building, which was begun during the fiscal year 1901, was completed in October, 1902, the total expenditure amounting to $15,232.83. As in the case of other buildings, the delay was caused by the difficulty in getting materials and labor.

Ship fitters and smith shop, building No. 29, emergency fund, March 28 and September 26, 1901, and July 30, 1902, $29,247.52.—The work of construction of this building began in February, 1902. During the fiscal year the south wing was completed, and the north wing, watershed, and paint shop erected and offices fitted up. The total expenditures were $20,469.73.

Lumber house, emergency fund, 1903, allotment November 21, 1902, $7,500.—Funds for this building were allotted by cable, and work immediately commenced upon the plans, which were approved in December. Owing to the long time required to secure material, the building was not quite finished by the end of the fiscal year, about

$1,000 worth of work remaining to be done. The expenditures during the fiscal year amounted to $4,362.38.

REPAIRS AND PRESERVATION.

Expenditures for repairs and preservation during the fiscal year amounted to $69,799.94. The existing buildings at this naval station being old and in a dilapidated condition when they came into the possession of the Government, it has been necessary to expend a comparatively large amount for their repair and preservation. A great deal of work has been done in the way of repairing and renewing roofs and strengthening the walls and repairing the floors of the various yard buildings. The wharves and sea walls of the station also required extensive repairs to prevent their entire collapse, and a considerable amount has been required to keep the roads, walks, gutters, and sewers of the station in decent and sanitary condition.

MAINTENANCE.

Expenditures under maintenance amounted to $48,711.83, which includes an item of $22,837.36 paid for crews of tugs, launches, and lighters required on account of the shallowness of the water preventing large vessels from approaching the landings of the station. The balance of the expenditure was for items properly chargeable to this appropriation according to the language of the appropriation act.

NAVAL STATION, ISLAND OF GUAM.

The expenditures for labor and material at this station during the fiscal year were as follows:

Repairs and preservation	$14,561.69
Maintenance	27,099.01
Contingent	14,660.90
Total	56,321.60

Under appropriation "Contingent" a small building for use as quarters for native seamen was constructed in order that they might be kept together and under the control of the beach-master. A building 20 by 28 feet was erected, and has proved satisfactory and suitable for the purpose. The cost was $520.98. Other expenditures under this head consisted of repairing damages of all kinds suffered by the station proper from the severe and disastrous earthquake on September 22, 1902. This earthquake was followed by less severe ones at various times, and the damage wrought by all was very extensive, and affected buildings, bridges, roads, and practically all other improvements on the island. The principal items of expenditures were repairs, as follows:

To the Government house	$2,090.79
To the general storekeeper's warehouse	1,050.64
To the sick quarters	1,039.07
To roads	3,512.87
To piers and bridges	3,636.68

Some work was also done under this appropriation toward removing a coral patch in the harbor of San Luis d'Apra, and other obstructions in the boat channel. Owing to the delay in securing the necessary explosives for this work, only $647.32 was expended during the fiscal year.

REPAIRS AND PRESERVATION.

The total amount expended under this appropriation is $14,561.69, the largest item being repairs to yard buildings. Moderate repairs were also made to wharves, bridges, roads, sewers, etc.

MAINTENANCE.

Expenditures under maintenance during the fiscal year amounted to $27,099.01. A considerable expenditure is required for transportation of materials and stores at this station owing to the distance from the point of landing to the station proper. This item cost $1,729.39. There being no appropriation for a civil establishment for this station, this appropriation was also required to bear the expense of the office force of the commandant and the yards and docks department of the station, including the wages of skilled laborers and helpers upon the lighting and ice plants, as well as the cost of fuel for the same, which items amounted to $15,874.64. The balance was expended on various items, as authorized by the language of the appropriation act.

NAVAL STATION, HABANA, CUBA.

The expenditures for labor and material during the fiscal year were as follows:

Repairing dry dock	$4,229.68
Maintenance	355.87
Total	4,585.55

At the beginning of the fiscal year the work of repairing the steel floating dry dock purchased from Spain was in progress. On September 17, 1902, while attempting to self-dock two of the pontoons of the dry dock for cleaning, the side walls of the dock gave way, causing serious injury. The other three pontoons had been previously successfully docked. Repairs were at once undertaken and carried forward under the supervision of a naval constructor. On November 6, 1902, it having been decided to transfer the dock to Pensacola, the large section left the station in tow. On November 17 the second section left. In January, 1903, preparations were commenced for abandoning this station. The property of the Bureau, consisting principally of a small lot of furniture and office furnishings, was surveyed and recommended to be sold, and on March 9, 1903, all property having been disposed of, the commandant was detached and left the station.

Expenditures under appropriation "Maintenance" were for keeping the station clean and for the purchase of ice, etc., for office use.

NAVAL STATION, HAWAII.

The expenditures for labor and material during the fiscal year were as follows:

Yard improvements	$1,677.91
Repairs and preservation	2,818.33
Maintenance	7,039.48
Civil establishment	730.00
Contingent	1,326.60
Total	13,592.32

YARD IMPROVEMENTS.

Grading and fencing, act March 3, 1901, $10,000.—Under this appropriation $1,677.91 was expended during the fiscal year, making a total of $9,363.89 expended to date. The expenditure during the fiscal year was for fencing lots belonging to the Government in Honolulu.

CONTINGENT.

In November, 1902, it became necessary to store cargoes of coal upon the vacant lot in the station, and in order to do this it was necessary to erect bulkheads on two sides of the vacant space. This was done at a cost of $727. It also became necessary to provide quarters for the crew of the commandant's barge, and a moderate cottage was erected at a cost of $599.60.

REPAIRS AND PRESERVATION.

The expenditures under this heading, $2,818.33, were for moderate repairs to station buildings, wharfs, bridges, etc., necessary to prevent them from falling into decay.

MAINTENANCE.

The expenditures under this heading amounted to $7,032.28, the principal item being for cleaning and clearing up yard and care of buildings.

NAVAL STATION, OLONGAPO, P. I.

The only expenditures at this station during the fiscal year were made from appropriation "Repairs and preservation," and amounted to $977.57, of which $950 were applied to the reconstruction of the sea wall, which was begun in February, 1903, under the direct charge of one of the marine officers attached to the station, and under the supervision of the civil engineer of the Cavite naval station. The balance was expended in the repair of hoisting apparatus at the station. These expenditures were made for the purpose of preserving the improvements from decay.

A short historical sketch of this station is given below as a matter of interest and possible historical value.

This station was selected by Spain as her main naval base in the East, and by a royal decree in 1884 the port of Subig, of which Pueblo Olongapo was a barrio, was declared a naval port, and the property appertaining thereto was set aside for naval purposes. Work was begun under a Spanish naval commission in 1885, and continued up to the advent of the United States forces in 1898. During this time large sums of money were spent in reclaiming land, erecting buildings, sea walls, causeways, dredgings, etc., and surveys for a railroad to connect with Manila had been completed, and work upon the roadway begun. Upon the advent of the American forces the Spaniards withdrew, and the arsenal was occupied by the natives, who continued in possession until September, 1899, when they were driven out by the navy, who have occupied it since that time. The station has been occupied mainly as a marine garrison, and little or no navy-yard work has been done, though thorough surveys have been made under Civil Engineer F. O. Maxon, U. S. Navy, and Lieutenant-Commander Niblack, U. S. Navy.

Subig Bay was the place selected by Rear-Admiral R. D. Evans, U. S. Navy, for the maneuvers of the Asiatic fleet in December, 1902.

NAVAL STATION, SAN JUAN, P. R.

The expenditures for labor and material at this station during the fiscal year amounted as follows:

Yard improvements	$1,901.40
Repairs and preservation	15,743.76
Maintenance	10,991.51
Civil establishment	2,573.00
Total	31,209.67

YARD IMPROVEMENTS.

Dredging, act June 7, 1900, $2,000.—Under this appropriation the slips on either side of the bridge to the coaling wharf were dredged to admit coal barges, and front of wharf was dredged to a depth of 24 feet. The amount expended was $1,564.80, and work was completed in October, 1902.

Coaling facilities, acts June 7, 1900, March 3, 1901, and July 1, 1902, $120,000.—Under these appropriations a small amount of work has been done in the way of preparation of plans and the construction of three hoppers. Further work upon this object is suspended pending a determination of the policy of the Department with reference to location of a permanent naval station at this point. Other objects of improvement especially appropriated for were suspended for the same reason.

REPAIRS AND PRESERVATION.

The amount expended under this appropriation during the fiscal year is $15,743.76, the principal items being repairs to yard buildings, officers' quarters, roads, sewers, and waterworks.

MAINTENANCE.

The amount expended under this appropriation during the fiscal year is $10,991.51, the principal item being cleaning and clearing up yard and care of buildings.

NAVAL STATION, TUTUILA.

The expenditures for labor and material at this station during the fiscal year were as follows:

Yard improvements	$50,538.28
Repairs and preservation	5,021.88
Maintenance	9,704.25
Emergency fund	14,870.55
Total	80,134.96

YARD IMPROVEMENTS.

Commandant's house, emergency fund, allotment January 21, 1903, $15,000.—Under this allotment a site was graded and work was begun October, 1902. The house is two stories high, with an attic, and is substantially built and of comfortable design and dimensions. The work was practically completed June 30, 1903, the total cost being $14,870.55.

Office building, act July 1, 1902, $10,000. -Plans were prepared for this building at the station and submitted in April for the approval of the Bureau, and authority was granted to begin the work. One lot of material has arrived at the station, but owing to the nonreceipt of invoices the amount expended during the year can not now be stated.

Roads and walks, act July 1, 1902, $5,000. -Under this appropriation a road leading from the barracks to the commandant's house was built in October, 1902, at a cost of $1,234.82. The road from the court-house to the reservoir was begun in February, 1903, and has not been completed owing to a lack of labor. The road through the naval station was remade at places where necessary. The total amount expended is $1,901.38.

Grading and filling, acts March 3, 1901, July 1, 1902, $55,000.—Grading at Swimming Point has been continued under this appropriation, a considerable area of valuable ground being reclaimed. Great difficulty is experienced in securing laborers for this work, and it is consequently progressing slowly. Several unsanitary places have been filled in, and other work adding to the appearance and availability of the station has been done. The amount expended during the year was $12,124.41.

Telephone system, act July 1, 1902, $2,000.—Under this appropriation materials for a telephone system, which will be of great value and much convenience, have been purchased and shipped from the United States.

Light-house at Aunuu Island, act July 1, 1902, $1,000. - Under this appropriation materials have been purchased, but the light has not yet been erected.

Coal storage plant, extensions, act March 3, 1901, $200,000. -Some work has been done upon plans and specifications for this extension, but further work is delayed until the services of a civil engineer familiar with local conditions can be secured.

Purchase of additional land, act of July 1, 1902, $35,000. -Negotiations for the purchase of additional land have been carried on for some time and are now practically closed, although the actual cost has not been reported to the Bureau. The department has acquired 37.8 acres at a cost of approximately $27,200.

REPAIRS AND PRESERVATION.

The expenditures under this appropriation amounted to $4,722.04, the principal item being repairs to yard buildings and to the station wharf.

MAINTENANCE.

Under this appropriation $7,648.14 were expended during the year, the principal item being for cleaning and clearing up station and care of buildings.

RECOMMENDATIONS AND ESTIMATES FOR THE FISCAL YEAR 1904–5.

The estimates for the navy-yards and stations, covering matters under the cognizance of this Bureau, to be laid before Congress at its coming session, are as follows:

Public works of improvement	$7,479,874.00
Repairs and Preservation	500,000.00
Maintenance, Yards and Docks	665,000.00
Pay of men on leave	60,000.00
Contingent, Yards and Docks	40,000.00
Civil establishment	157,884.57
Plans and estimates required by section 3663, Revised Statutes	150,000.00
Plans and specifications for public works	35,000.00
Total	9,087,758.57

The appropriations made by the act approved March 3, 1903, for public works, under the cognizance of this Bureau, at the navy-yards and stations, amounted to $3,806,440, covering 122 objects. This money became available on the first day of the present fiscal year, and steps were immediately taken to carry into effect the authority granted.

The improvements being constructed during the current year will add much to the efficiency of the naval establishment ashore, but there yet remains many objects of great importance, some of which are urgently needed. The estimates for the coming fiscal year provide for continuing the work upon the stone and concrete dry docks at Charleston, New York, and Norfolk, and upon the steel floating dock for Cavite. With the exception of the improvement to the water front at the navy-yard, New York, these items are the largest in the estimates now being submitted. The estimates for other items of improvement at the various navy-yards and stations are individually small in amount, and while they amount to considerable in the aggregate, do not provide for large works of improvement which are desirable, and in some cases much needed. More extensive accommodations are required for the berthing and storage of torpedo boats; a masonry dry dock of small capacity would be an economical provision for the navy-yard, Norfolk, Va., as well as at several other yards, for the docking of the large number of small vessels belonging to the service, and a steel floating dock for the navy-yard, Portsmouth, N. H., capable of lifting vessels of 5,000 tons, is desirable to replace the old wooden floating dock at that yard, which, while still in service, is old and nearing the end of its life. At the new navy-yard at Charleston, S. C., many works of improvement are necessary if the yard is to be developed into a station of even moderate efficiency. This applies also to the new station at New Orleans, La., where additional land has recently been acquired, and where there is now sufficient space for the construction of all needful buildings and other works of improvement.

At the navy-yard, Pensacola, Fla., which yard will be one of undoubted importance in the future, a masonry dry dock, of the largest capacity, should be commenced at once to afford docking accommodations for the largest vessels, and other steps taken to place the yard in efficient working condition. At the navy-yard, Puget Sound, Wash., it would be wise to commence the construction of a new masonry dock. The service performed by this navy-yard is constantly increasing, and another dry dock will be essential before one can be completed. At New York there is great need of additional land for

extending the yard, and it would seem that the sooner this item receives attention the more moderate would be the prices asked, as land in the vicinity is no doubt increasing in value from year to year. At the navy-yard, Washington, a new general storehouse is urgently needed, and appropriations for the improvement of the land recently acquired are matters of necessity, if the addition is to be of any practical value.

An estimate is submitted for the pay of employees when granted leave of absence as authorized by the act of Congress. This item was last year included in the general appropriation "Maintenance, Yards and Docks," but it has been deemed advisible to submit it as a separate item.

The appropriation for repairs and preservation requires the utmost attention to prevent a deficiency. While the number of navy-yards and stations has increased, and the number of buildings at each added to, this appropriation has remained the same from year to year, and while the Bureau hopes to go through the coming fiscal year without an additional allowance, it is certain that the amount allowed will not suffice in the future, when the buildings erected during the last few years and now being erected will begin to require repairs.

The amount appropriated for "Maintenance" is inadequate, and estimate is submitted for an increase of $65,000. An examination of the language of the appropriation act will disclose the numerous expensive items chargeable to this appropriation, and a reference to report No. 3, appended hereto, will show in detail the cost of the various items during the last fiscal year. The Bureau is constantly in receipt of applications from practically all of the navy-yards and stations for an increase of the amount allotted to them from this appropriation, and while it is unable to grant the requests made it feels that they are reasonable.

The Bureau again renews its recommendation made in previous reports that a board of officers be appointed to consider a site for the location of a naval station on the south Pacific coast, and also its recommendation that the matter of the improvement of the naval station at Pearl Harbor, Hawaii, receive attention. The location and establishment of stations in the other islands of the United States should also be determined at an early date, as improvements are now restricted on account of the uncertainty, and the efficiency of the stations consequently diminished and repair work made more expensive.

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CIVIL ENGINEERS.

The recommendation of last year that commutation of quarters be allowed the corps of civil engineers is renewed. It has been granted to the corps of naval constructors by enactment of Congress, and there is good reason why the same should be accorded other shore duty corps.

The pay of the corps of civil engineers is one of the smallest in the naval service bestowed upon commissioned officers, and is inadequate for the character of service rendered, and compares unfavorably with that obtaining in civil life. One pay table having been established for the three seagoing corps, the Line, Medical, and Pay Corps, that of distinctively shore duty corps should be equalized with respect to each other where the attainments required and services performed are of a similarly high technical order.

It is recommended that Congress be asked to grant to the technical shore duty corps, including the civil engineer corps, the pay and allowances established by law for naval constructors and assistant naval constructors. Such an enactment would be in the direction of equalizing the pay of officers, and remove a serious discrimination which has long existed.

APPENDICES.

The papers which accompany this report are as follows:

No. 1. Report of expenditures (material and labor) at navy-yards and stations during the fiscal year ended June 30, 1903.
No. 2. Detailed report from navy-yards and stations of expenitures (material and labor) under appropriation "Repairs and preservation, navy-yards and stations," during the fiscal year ended June 30, 1903.
No. 3. Detailed report from navy-yards and stations of expenditures (material and labor) under appropriation "Maintenance, yards and docks," during fiscal year ended June 30, 1903.
No. 4. Detailed reports from navy-yards and stations of expenditures under appropriation "Civil establishment, Bureau of Yards and Docks," during the fiscal year ended June 30, 1903.
No. 5. Report of expenditures and appropriation for salaries for Bureau of Yards and Docks during fiscal year ended June 30, 1903.
No. 6. Statement of appropriations for Bureau of Yards and Docks, showing amounts appropriated, obligated, and remaining unobligated June 30, 1903, under each specific head of appropriation.
No. 7. Statement of offers received during the fiscal year ended June 30, 1903, for works of improvement under the cognizance of the Bureau of Yards and Docks, as required by section 429, Revised Statutes.
No. 8. Detailed statement of estimates submitted by the Bureau for the fiscal year ending June 30, 1905.
No. 9. Tabulated statement showing the character, value, and condition of property under the cognizance of the Bureau of Yards and Docks at navy-yards and stations June 30, 1903.

Very respectfully,

MORDECAI T. ENDICOTT,
Chief of Bureau.

The SECRETARY OF THE NAVY.

REPORT OF THE CHIEF OF THE BUREAU OF EQUIPMENT.

WASHINGTON, D. C., *September 17, 1903.*

SIR: I have the honor to submit a report of the operations of the Bureau of Equipment for the fiscal year ending June 30, 1903, with the annual estimates for the service of the fiscal year ending June 30, 1905.

The appropriations under the cognizance of the Bureau and its various branches available for use during the fiscal year were as follows:

Naval act, approved July 1, 1902.

Coal, equipment	$2,500,000.00
Equipment of vessels	2,000,000.00
Depots for coal	640,000.00
Increase of the Navy, equipment	400,000.00
Ocean and lake surveys	100,000.00
Contingent equipment	35,000.00
Civil establishment	31,402.52
Naval Observatory, grounds and roads	5,000.00
Total	5,711,402.52

Deficiency act, approved March 3, 1903.

Equipment of vessels	$750,000.00

Legislative, executive, and judicial act, approved April 28, 1902.

Salaries, Bureau of Equipment	813,840.00
Salaries, Naval Observatory	39,440.00
Contingent and miscellaneous expenses, Naval Observatory	16,750.00
Salaries, Nautical Almanac Office	22,900.00
Salaries, Hydrographic Office	100,858.00
Contingent and miscellaneous expenses, Hydrographic Office	39,600.00
Pilot charts, North Pacific Ocean	2,000.00
Total	235,388.00

SUMMARY.

Coal, equipment	$2,500,000.00
Equipment of vessels	2,750,000.00
Depots for coal	640,000.00
Increase of the Navy, equipment	400,000.00
Ocean and lake surveys	100,000.00
Contingent equipment	35,000.00
Civil establishment	31,402.52
Naval Observatory, grounds and roads	5,000.00
Salaries, Bureau of Equipment	13,840.00
Contingent and miscellaneous expenses, Naval Observatory	16,750.00
Salaries, Naval Observatory	39,440.00
Salaries, Nautical Almanac Office	22,900.00
Salaries, Hydrographic Office	100,858.00
Contingent and miscellaneous expenses, Hydrographic Office	39,600.00
Pilot charts, North Pacific Ocean	2,000.00
Total	6,696,790.52

These appropriations were adequate for the needs of the service during the year, although, as stated, in the case of the appropriation "Equipment of vessels," an additional amount over that originally estimated for had to be provided, which was supplied in the deficiency act quoted above.

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TRANS-PACIFIC SUBMARINE TELEGRAPH CABLE.

It is a matter of congratulation that an efficient trans-Pacific submarine telegraph cable from San Francisco to Manila, with relay stations, located only on American territory is at present in operation. The Bureau in its annual reports from year to year since the Spanish war has noted the progress of events which have led to this result. Much credit is due to the Commercial Pacific Cable Company for constructing and laying this cable in a rapid and satisfactory manner. At the same time it should be recorded that the cable was first advocated, the route selected, the surveys, costing a large sum, made, and all necessary information collected and supplied to Congress by the Navy Department.

To obtain a franchise it was necessary for the Commercial Pacific Cable Company to agree to conditions laid down by the Government. It is believed that these conditions fully provide for the interests of the country in time of war. The requirements of the Government having been accepted by the company, the Navy Department continued to aid the enterprise in every way possible. The cable-laying charts, which

had been constructed from the surveys made, were supplied to the company, and this enabled the completion of the cable to be advanced at least one year. In addition, land was leased for cable stations by the Department at the Midway Islands and at Guam at nominal rates. It is gratifying to report that the relations between the Department and the company are very satisfactory.

The Bureau invites attention to the necessity of providing means of defense at the three intermediate cable stations between the eastern and western possessions of the United States, viz, at Honolulu, Midway Islands, and the island of Guam.

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OFFICE OF INSPECTOR OF ELECTRICAL APPLIANCES.

Lieut. Harry George, U. S. Navy, has continued as inspector of electrical appliances during the past year. The work of the office has increased in volume and is described in the report of the inspector, forwarded herewith.

The Bureau invites attention to its statement in the annual report of last year in regard to the detail of a junior officer as assistant to the inspector of electrical appliances. It is much to be regretted that no young officer can be spared to avail himself of the knowledge and experience to be gained by the practical work of the office in connection with laying out the wiring and installing the electric plants and appliances on board ship.

The sum of $376,964.67 has been expended during the fiscal year upon the installation and repair of electrical appliances on shipboard; $212,836.68 on the manufacture and repair of electrical apparatus and appliances in navy-yard shops. The total of $589,801.35 was expended during the fiscal year on electrical appliances for all purposes.

Alterations, additions, and repairs to the electrical appliances of 119 naval vessels have been made during the past year.

A portable searchlight has been designed for use in connection with coast-defense districts and the occupation of advanced naval bases. In general, the apparatus consists of two units, each mounted on broad treadwheels, suitable for operation in a rough country and so constructed that it can be readily assembled or disassembled for transportation in ships' boats. This apparatus was manufactured by the General Electric Company, Schnectady, N. Y., and passed a successful preliminary test at these works. It is now at the navy-yard, New York, undergoing additional tests before issue to the service.

Reference is made to the report of the inspector for a detailed account of specifications prepared and revised during the year; also for a description of the electrical installations of ships under construction.

During the past year the Bureau has acquired two sets of the Ducretet loud-speaking telephone, marine type, extensively used in the French navy. This apparatus, together with a set of the Graham instruments, English navy type, will be tested in competition with the Bell and other instruments of American manufacture and installed on board ship for further observation.

A new system of battery fire control has been designed during the year to meet the requirements of the Bureau of Ordnance. In this system the guns are divided into groups instead of by divisions as heretofore, each group including all guns of practically the same nature and having the same arc of fire. The system possesses great flexibility and enables separate and distinct orders to be transmitted simultaneously to the various groups of guns. The range-order indicators have been modified to admit the transmission of a greater number of rangers; any range from 100 to 9,900 yards may now be transmitted, advancing by increments of 50 yards. Detailed drawings, with stock tables, have been prepared to illustrate the above-mentioned system.

The school at the New York Navy-Yard for the instruction of enlisted men for the rate of electrician, with a view of detail on shipboard as dynamo tenders and for the care of electrical appliances, has been successfully conducted during the past year. It will soon be moved into more suitable quarters, with additional appliances, where it is anticipated it will be still more efficient.

It is regretted that the school for the instruction of officers in electricity at the Naval Torpedo Station, Newport, R. I., has not been attended by a greater number of officers during the year.

The recommendation that a corps of warrant electricians be established is renewed, and attention invited to the remarks in previous reports on this subject.

WIRELESS TELEGRAPHY.

The Bureau refers to its last annual report for a full description of the policy adopted in connection with the use of wireless telegraphy in the Navy.

At the request of the Bureau a board of five naval officers was appointed by the Department in August, 1902, for the purpose of conducting tests of various types of wireless telegraph apparatus. In general, the instructions of the Bureau to the board required a test of duplicate sets of the same maker under the following conditions, viz:

(1) Between two shore stations. Washington and Annapolis, 30 miles apart, were selected for these tests.

(2) Between Annapolis and a moving ship in Chesapeake Bay.

(3) Between two ships at sea, and at a considerable distance from the land.

For these trials duplicate sets were purchased from Messrs. Ducretet and Rochefort, of Paris; Braun-Siemens-Halske and Slaby-Arco, of Berlin; Lodge-Muirhead, of London; and De Forest of the United States.

The work of the board was much hampered by the fact that all members had additional duties to perform. The board was also greatly delayed in obtaining suitable ships to carry on the trials required at sea. Tests of the Lodge-Muirhead apparatus between Washington and Annapolis are still to be made. Tests for interference for all sets are also yet to be made.

The report of the board was received by the Bureau September 23, 1903; it finds that, under the varying conditions of the tests above outlined, the Slaby-Arco apparatus is superior to the other systems.

On March 27, 1903, after consultation with the president of the wireless board, the Bureau ordered 20 sets of wireless telegraph apparatus of the Slaby-Arco pattern, the Department being desirous of testing this system of transmitting signals during the summer maneuvers. Only a part of the sets ordered were delivered in time to be installed on shipboard and at shore stations previous to the commencement of the maneuvers.

The following ships were fully equipped with apparatus and operators:

Baltimore.	*Olympia.*	*Texas.*
Kearsarge.	*Prairie.*	*Topeka.*
Illinois.		

The following shore stations were equipped in the same manner:

Cape Elizabeth, Me.	Navy-yard, New York.
Newport, R. I.	Highlands of Navesink, N. J.
Montauk Point, N. Y.	

The locality of the ships assimilating an enemy's squadron on the coast of Maine, was transmitted by means of wireless telegraphy on board the *Olympia*, when acting as scout, to the commander in chief on board the *Kearsarge*, in time to enable him to defeat the attack made, under the rules of the maneuvers. In general, the use of the apparatus during the summer drills was successful, and the commander in chief has recommended that all large ships of the Navy be equipped with wireless telegraph appliances without delay.

The balance of the Slaby-Arco sets on hand will be installed on the U. S. S. *Maine* and *Minneapolis*, and at the following shore stations, viz:

Navy-yard, Portsmouth, N. H.	Cape Henry, Va.
Navy-yard, Boston, Mass.	Key West, Fla.
Thatchers Island, Cape Ann, Mass.	Dry Tortugas, Fla.
Highland Light, Cape Cod, Mass.	Pensacola, Fla.

On September 10, 1903, acting under instructions from the Department, the Bureau ordered 25 additional sets of Slaby-Arco apparatus. These will be installed on ships of the fleet, at stations on the Pacific coast, at naval stations on islands in the Pacific Ocean, in the Philippines, and in the West Indies, as soon as received.

Commander F. M. Barber, U. S. Navy (retired), has continued on duty under the Bureau during the year, and supplies information concerning the improvements and developments of this method of signaling, which is fast assuming large and important proportions.

BERLIN WIRELESS TELEGRAPH CONFERENCE.

A preliminary international wireless telegraph conference met at Berlin, August 4, 1903, and adjourned August 13, 1903. Forty-four members were present, representing Germany, Great Britain, France, Russia, Austria, Italy, Spain, Hungary, and the United States. The American delegates were Brig. Gen. A. W. Greely, U. S. Army, Com-

mander F. M. Barber, U. S. Navy (retired), and Mr. John J. Waterbury, of the Department of Labor and Commerce. All the countries represented, except the United States, exercise governmental control over all cable and telegraph lines.

A protocol was prepared by the conference, which the delegates from Germany, France, Russia, Austria, Spain, Hungary, and the United States agreed to submit to their respective Governments, with recommendation that it be made the basis of an international convention.

While the delegates from Great Britain and Italy did not concur in the protocol they agreed to submit it to their respective Governments for consideration.

A summary of the protocol is as follows:

Article 1 concerns exchange of messages between vessels at sea and commercial coast stations under the following headings:

First. Defines coast station.

Second. Coast stations must receive from or forward to vessels at sea all wireless telegrams, irrespective of the system of wireless telegraph employed.

Third. Technical information likely to facilitate communication between vessels and coast stations must be made public.

Fourth. Fixes tariff for messages.

Article II provides that an international convention shall establish rules regulating exchange of communication between ships and shore stations.

Article III extends provisions of the St. Petersburg telegraphic convention to wireless telegraphy.

Article IV gives preference to signals of distress.

Article V provides that all wireless telegraph stations shall be used in such a manner as to interfere as little as possible with other stations.

Article VI reserves to any contracting governments the right to enforce obedience by commercial stations in the respective countries to any regulation laid down by international convention.

Article VII relieves government stations from all regulations except Articles IV and V.

Article VIII provides for admission, on request, of other countries.

Your attention is respectfully invited to the statements in the last annual report of the Bureau in reference to the necessity of additional officers for duty in connection with wireless telegraphy and the practice of foreign navies in this respect.

COMPASS OFFICE.

Commander C. J. Badger, U. S. Navy, continued to serve as superintendent of compasses until his detachment on April 24, 1903; he was succeeded by Commander George H. Peters, U. S. Navy. This office has been without an assistant since the detachment of Ensign W. L. Varnum, U. S. Navy (retired), on November 29, 1902.

The work of the compass office has continued as in previous years, and is fully set forth in the report of the superintendent forwarded herewith.

Compass outfits for the following ships under construction have been supplied during the year:

California.	*Milwaukee.*	*St. Louis.*
Charleston.	*Nebraska.*	*South Dakota.*
Colorado.	*New Jersey.*	*Virginia.*
Georgia.	*Pennsylvania.*	*West Virginia.*
Maryland.	*Rhode Island.*	

Partial or complete outfits have been supplied to the following vessels:

Abarenda.	*Cushing.*	*Mayflower.*
Adams.	*Decatur.*	*Modoc.*
Arkansas.	*De Long.*	*Nevada.*
Bagley.	*Dolphin.*	*Petrel.*
Baltimore.	*Ericsson.*	*Porter.*
Barney.	*Florida.*	*Restless.*
Bennington.	*Foote.*	*Rodgers.*
Biddle.	*Inca.*	*Stockton.*
Brooklyn.	*Lebanon.*	*Wyoming.*
Brutus.	*Mackenzie.*	*Yankee.*
Cleveland.	*Maine.*	

In addition to the above a sufficient quantity of compasses and their accompanying instruments has been kept in stock at the different navy-yards to supply any probable demand for this material.

The subject of the location and surroundings of working compasses on new ships has continued to receive careful consideration. While other features of ship construction are often necessarily given greater weight, yet the loss of directive force of the compass when placed within an iron or steel inclosure should be constantly borne in mind, and every effort made to decrease as far as possible the unfavorable conditions which so largely affect it.

Drawings and specifications for an illuminated card pelorus having been prepared in the compass office last year, a number of these instruments were installed on board ships for test under service conditions. The special feature of this pelorus is a transparent glass dial illuminated for night use by a lamp fixed beneath in a suitable chamber, and reports so far received commend it highly. It is hoped that it may become the standard pelorus in the near future.

The examination and test of new instruments for measuring the speed of ships, for sounding, and for other navigational purposes has continued as in past years.

Attention is invited to the lack of officers detailed for compass instruction during the year. The importance of this course is so well understood and appreciated in the service that officers on leave or waiting orders frequently present themselves voluntarily for instruction, and it is hoped that the number specially detailed for this purpose will be increased in the future.

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OFFICERS ON DUTY UNDER THE BUREAU.

The following-named officers are now attached to the Bureau for duty; the total number is 42. The Bureau desires to commend them for the efficient performance of their duties:

BUREAU OF EQUIPMENT.

Commander T. E. D. W. Veeder, U. S. Navy, Senior Assistant.
Lieut. Commander C. C. Rogers, U. S. Navy, Assistant.
Lieut. Commander J. L. Jayne, U. S. Navy, Assistant.

OFFICE OF INSPECTOR OF ELECTRICAL APPLIANCES.

Lieut. Harry George, U. S. Navy, Inspector.

COMPASS OFFICE.

Commander G. H. Peters, U. S. Navy, Superintendent.

NAVAL OBSERVATORY AND NAUTICAL ALMANAC OFFICE.

Rear-Admiral C. M. Chester, U. S. Navy, Superintendent.
Commander J. M. Robinson, U. S. Navy, Assistant.
Lieut. Commander E. E. Hayden, U. S. Navy, Assistant.
Prof. A. N. Skinner, U. S. Navy, Assistant.
Prof. W. S. Eichelberger, U. S. Navy, Assistant.
Prof. F. B. Littell, U. S. Navy, Assistant.
Prof. W. S. Harshman, U. S. Navy, Director Nautical Almanac.

HYDROGRAPHIC OFFICE.

Commander W. H. H. Southerland, U. S. Navy, Hydrographer.
Lieut. George W. Logan, U. S. Navy, Assistant.
Commander R. G. Peck, U. S. Navy (retired), Assistant.
Lieut. Commander Holman Vail, U. S. Navy (retired), Assistant.
Lieut. C. M. McCarteney, U. S. Navy (retired), Assistant.

BRANCH HYDROGRAPHIC OFFICES.

Lieut. J. Franklin, U. S. Navy (retired), Baltimore, Md.
Ensign W. G. Richardson, U. S. Navy (retired), Boston, Mass.
Lieut. W. H. Faust, U. S. Navy (retired), Buffalo, N. Y.
Commander A. V. Wadhams, U. S. Navy, Chicago, Ill.
Lieut. C. A. Foster, U. S. Navy (retired), New Orleans, La.
Lieut. Ridgley Hunt, U. S. Navy (retired), New York, N. Y.
Lieut. A. C. McMechan, U. S. Navy (retired), Norfolk, Va.
Lieut. H. M. Jacoby, U. S. Navy (retired), Philadelphia, Pa.
Ensign Creighton Churchill, U. S. Navy (retired), Sault Ste. Marie, Mich.
Lieut. J. C. Burnett, U. S. Navy (retired), San Francisco, Cal.

INSPECTORS OF EQUIPMENT.

Naval Constructor H. G. Gillmor, U. S. Navy, Bath, Me.
Lieut. Commander E. E. Wright, U. S. Navy, South Boston and Quincy, Mass.
Lieut. Commander J. N. Jordan, U. S. Navy, Schenectady, N. Y.
Lieut. R. H. Osborn, U. S. Navy, Elizabethport, N. J., and Morris Heights, N. Y.
Lieut. Lucian Flynne, U. S. Navy (retired), Philadelphia, Pa., and Wilmington, Del.
Lieut. Harry George, U. S. Navy, Baltimore, Md.
Lieut. Commander P. J. Werlich, U. S. Navy, Newport News, Va.
Lieut. Commander A. F. Fechteler, U. S. Navy, San Francisco, Cal.
Lieut. G. Mallison, U. S. Navy, Seattle, Wash.

SPECIAL DUTY.

Commander H. Osterhaus, U. S. Navy, Wireless Telegraph Board.
Capt. L. C. Logan, U. S. Navy, Inspector of Construction, United States Naval Coal Depot, Frenchman Bay, Me.
Commander J. A. Norris, U. S. Navy, in charge of Guam and Midway Islands Longitude Expedition.

Commander F. H. Holmes, U. S. Navy, Guam and Midway Islands Longitude Expedition.
Lieut. J. M. Hudgins, U. S. Navy, Wireless Telegraph Board.
Civil Engineer George A. McKay, U. S. Navy, Inspector of Construction, United States Naval Coal Depot, Narragansett Bay, Rhode Island.
Commander F. M. Barber, U. S. Navy (retired), Investigation of Systems of Wireless Telegraphy Abroad.

CLERICAL FORCE.

The Bureau desires to commend the clerical force for faithful and efficient service during the past year. Overtime work is constant, and this extra service is cheerfully performed. Your favorable consideration of their welfare is respectfully solicited.

ASSISTANT CHIEF OF BUREAU.

The Bureau invites attention to its urgent recommendations in past annual reports that an assistant chief of Bureau be provided. This recommendation is renewed.

OFFICE SPACE.

During the past fiscal year this Bureau has had assigned for its use two additional rooms in the basement of the Navy Department proper, and four small rooms on the seventh floor of the Mills Building. The result is a great relief from the former unsanitary condition, due to overcrowding the four rooms of the Bureau on the third floor of the main building. The Bureau suffers somewhat, however, from the wide separation of its force of clerks and assistants, involving the expenditure of considerable time in passing to and fro. At present all these rooms are not connected by telephone. It is recommended that this defect be corrected.

REPORTS FROM SUBORDINATE BRANCHES OF THE BUREAU.

The reports of the Superintendent of the Naval Observatory, the hydrographer to the Bureau, the superintendent of compasses, the inspector of electrical appliances, and the director of the Nautical Almanac are inclosed herewith. They contain much of great value to the service, and their recommendations are approved by the Bureau. Your examination of these reports is respectfully urged.

ESTIMATES.

The estimates for the fiscal year ending June 30, 1905, are herewith submitted.

Very respectfully,

R. B. BRADFORD,
Chief of Bureau.

The SECRETARY OF THE NAVY.

REPORT OF THE CHIEF OF THE BUREAU OF NAVIGATION.

DEPARTMENT OF THE NAVY,
BUREAU OF NAVIGATION,
Washington, D. C., October 1, 1903.

SIR: I have the honor to present herewith a report of the Bureau of Navigation for the fiscal year ending June 30, 1903, and to inclose a report (A) showing the movements, condition, station, and service of all vessels of the Navy for the fiscal year ending upon that date, and reports of officers in charge of the various establishments under the control of the Bureau, as follows: (B) of the Chief Intelligence Officer; (C) of the Superintendent of the Naval Academy; (D) of the Commandant of the Naval Training Station, Narragansett Bay; (E) of the Commandant of the Naval Training Station, San Francisco, Cal.; (F) of the Governor of the Naval Home, Philadelphia, Pa.; (G) of the President of the Naval War College, Narragansett Bay; (H) of the Commanding Officer of the Gunnery Training Ship *Puritan*; (K and L) of the Commanders in Chief of the Asiatic and North Atlantic Fleets, and of the squadron commanders of those fleets; (M, N, and O) of the Commanders in Chief of the Pacific, South Atlantic, and European Squadrons; (P) a report of the search problem and maneuvers carried out during the mobilization and concentration of the North Atlantic Squadrons (the Battleship and Caribbean Squadrons) and the European and South Atlantic Squadrons at Culebra; (Q) a report of the fleet maneuvers carried out by the Asiatic Fleet during the winter; and schedule (R) of the estimates for the support, during the coming fiscal year, of the Bureau and all those establishments for which appropriation is made under the Bureau.

DISTRIBUTION OF THE FLEET.

During the year which closed June 30, 1903, fleets and squadrons have been assigned as follows:

North Atlantic Fleet.—Under Rear-Admiral Francis J. Higginson until April 30, 1903, and from that date to the end of the year under Rear-Admiral A. S. Barker. Rear-Admiral J. B. Coghlan remained as second in command, North Atlantic Squadron, until October 4, 1902, the date of the establishment of the Caribbean Squadron, North Atlantic fleet, and from that date to the end of the year he has remained commander of Caribbean Squadron. The Coast Squadron of the North Atlantic fleet was organized on May 19, 1903, under Rear Admiral J. H. Sands.

United States South Atlantic Squadron.—Under Rear-Admiral G. W. Sumner from July 1, 1902, until June 30, 1903.

United States European Squadron.—Under Rear-Admiral A. S. Crowninshield until March 20, 1903, when he was retired from active service at his own request, leaving Capt. J. H. Dayton as senior officer in command of the squadron until April 28, 1903, on which date Rear-Admiral C. S. Cotton hoisted his flag on board the *Chicago* as commander in chief.

Pacific Squadron.—Under Rear-Admiral Silas Casey until February 4, 1903, and from that date to the end of the year under Rear-Admiral Henry Glass.

United States Asiatic Fleet.—Rear-Admiral Frederick Rodgers, commander in chief, with Rear-Admiral R. D. Evans, senior squadron commander, and Rear-Admiral F. Wildes, junior squadron commander until October 29, 1902, on which date Rear-Admiral Evans assumed command as commander in chief, with Rear-Admiral Wildes as senior squadron commander until January 8, 1903, when he was ordered home by the commander in chief, having been condemned by medical survey, and Capt. C. S. Sperry ordered to command the Southern Squadron, pending the arrival of Rear-Admiral P. H. Cooper, whom the Department immediately ordered to proceed to the Asiatic Station as the relief of Rear-Admiral Wildes. Rear-Admiral Cooper hoisted his flag on board the *Rainbow* as senior squadron commander at Hongkong, China, on February 17, 1903. On June 12, 1903, the U. S. S. *Wisconsin*, flying the flag of Rear-Admiral Yates Stirling, arrived at Yokohama, Japan, at which port Rear-Admiral Cooper was relieved from the command of the Philippine Squadron by Rear-Admiral Stirling, Rear-Admiral Cooper assuming command of the Northern Squadron, the two officers exchanging flagships.

OPERATIONS OF THE FLEET.

NORTH ALTANTIC STATION.

The North Atlantic Squadron has been expanded into a fleet consisting of the Battleship Squadron under a rear-admiral, the commander in chief; the Caribbean Squadron under a rear-admiral, and the Coast Squadron under a rear-admiral. The flag officers commanding these two latter-mentioned squadrons are themselves with their squadrons under the command of the commander in chief of the North Atlantic Fleet.

On July 1, 1902, the North Atlantic Squadron consisted of the *Kearsarge*, flagship of commander in chief; *Brooklyn*, flagship of second in command; *Alabama*, *Massachusetts*, *Olympia*, *Marietta*, *Machias*, and *Scorpion*. The *Indiana*, *Mayflower*, *Montgomery*, *Gloucester*, *Puritan*, *Supply*, *Panther*, *Peoria*, *Leyden*, *Nina*, and *Aileen* were temporarily attached to the squadron in August for the purpose of participating in the summer maneuvers, and all were detached early in September, except the *Indiana*.

BATTLESHIP SQUADRON.

During the early part of the summer of 1902 the Battleship Squadron was engaged in cruising off Newport, R. I., and in Marthas Vineyard and Nantucket Sounds. Later in the summer the Battleship Squadron, and in addition the *Brooklyn*, which reported to the flag on July 31, 1902, proceeded to Rockport, Mass., to prepare to take part in the search problem. At Rockport the squadron was augmented by the *Montgomery*, *Gloucester*, *Peoria*, *Leyden*, and *Nina* and a torpedo flotilla. The squadron was engaged in the search problem from August 19 until the early morning of August 24. After the search problem the squadron proceeded to Menemsha Bight, arriving at that place on

August 25, where preparations were immediately commenced for the combined army and navy maneuvers. The following vessels took part in these maneuvers: *Kearsarge*, flagship; *Alabama*, *Massachusetts*, *Indiana*, *Brooklyn*, *Olympia*, *Puritan*, *Supply*, *Panther*, *Mayflower*, *Montgomery*, *Scorpion*, *Gloucester*, and *Aileen*. Detachments of the naval militia were distributed among the various vessels, affording the naval militia opportunity for practical experience on board vessels of war. From August 31 to September 6 the squadron was engaged in the combined army and navy maneuvers. A full report of these maneuvers as well as of the search problem has been made to the Navy Department. Much valuable experience was gained during the maneuvers and in working out the search problem. At the expiration of the maneuvers the vessels of the squadron were dispersed and sent to the navy-yards to undergo repairs preparatory to the winter's work.

After the completion of repairs the squadron assembled at Hampton Roads and proceeded to Culebra, arriving the latter part of November, to take part in the search problem and maneuvers. A detailed report of the search problem and maneuvers is appended to this report.

After the January maneuvers some changes became necessary in the assignment of vessels to the various squadrons. The policy of the Department being to keep the battle ships together in one squadron, it was found necessary to detach the flagships *Illinois* and *Iowa* from their squadron and assign them to the Battleship Squadron of the North Atlantic Fleet. The *Newark* was designated to take the place of the *Iowa* and the *Chicago* to relieve the *Illinois* as flagship of the South Atlantic and European Squadrons, respectively.

After the conclusion of the winter maneuvers at Culebra the energies of officers and men were wholly given to exercises and drills tending to improve the marksmanship of the fleet, and the following vessels were assembled at Pensacola, Fla., for this purpose: *Kearsarge*, *Illinois*, *Alabama*, *Indiana*, *Iowa*, *Massachusetts*, *Texas*, *Olympia*, *Atlanta*, and *Scorpion*.

During the stay at Pensacola target practice was held outside in the Gulf and the results were highly satisfactory, the improvement in marksmanship being far greater than the Department anticipated. The greatest credit should be given to the commander in chief, Rear-Admiral Francis J. Higginson, for so earnestly striving to carry out the wishes of the Department in establishing new methods of instruction to secure good marksmanship. Lieut. Commander W. S. Sims, who is stationed in the Bureau of Navigation and has charge of subjects relating to gunnery, was detailed to the fleet during the stay at Pensacola, and to his ability and untiring efforts much of the improvement in target practice throughout the service is due. The enthusiasm and zeal displayed by officers and men in the fleet have been most praiseworthy.

The *Kearsarge*, *Alabama*, *Illinois*, *Iowa*, *Olympia*, and *Scorpion* left Pensacola on April 23, and arrived on the Southern drill grounds on April 28; the *Indiana* having left Pensacola for New York on April 13 and arrived at the latter place on April 20; the *Texas* and *Massachusetts* having left Pensacola on April 16 and 19, respectively, for Hampton Roads, under orders to rejoin the fleet on the Southern drill grounds on April 28, where it was inspected by the Admiral of the Navy, George Dewey. On April 30 the vessels were dispersed to the navy-yards for repairs preparatory to the summer's work.

Upon the completion of repairs the squadron was reassembled at Tompkinsville, from which port the *Illinois*, *Alabama*, *Brooklyn*, *Massachusetts*, and *Mayflower*, accompanied by the Navy colliers *Cæsar*, *Sterling*, and *Lebanon*, sailed on June 25 for the Azores.

CARIBBEAN SQUADRON.

The Caribbean Squadron was created by the Department's order of October 4, 1902, and the following outline of its duties as indicated therein shows the object of its creation:

This squadron is to provide at all times a force in Caribbean waters which can proceed quickly, whenever needed, to such points as may demand protection for American interests. Such protection is more thoroughly provided for by the presence of a flag officer to investigate difficulties and to enter into consultation with the authorities of the countries bordering on the Caribbean.

This squadron is composed of cruisers and in case the whole fleet is assembled will act under the orders of the commander in chief of the fleet as its cruiser squadron in time of war or for the purpose of exercises. Thus the strategical and tactical needs of the fleet in war as well as the needs of peace cruising in the Caribbean are satisfied by this arrangement.

The number of cruisers in this squadron should be eight, of which five should be of an improved *Olympia* type and three specially constructed vessels of light draft for river service, but capable of keeping the sea. This would give us at all times a division or squadron of four cruisers for active sea service and two vessels for river work, allowing one of each type to be away for repairs. Two of the larger cruisers should be fitted as flagships.

The Caribbean Squadron is based upon Culebra and obtains some of its supplies from San Juan, which is close at hand. The island of Culebra possesses in its adjacent waters several good anchorages, and the health of the vessels which have spent much of their time there has been good. Up to the present time the Navy has not finally decided to use this island as a primary base, but contemplates the use of Guantanamo for that purpose and as a permanent dockyard. With that position strongly defended by permanent works erected by the army engineers it is unlikely that strong or expensive fortifications will be desired at Culebra.

This squadron was formerly known as the second division of the North Atlantic Squadron up to October 4, 1902. The *Brooklyn* was detailed from this squadron for service in the month of July to transport the remains of the late Sir Julian Pauncefote, British ambassador to the United States, from this country to England. Upon her return from Southampton, England, to Marthas Vineyard, where she joined the North Atlantic Fleet on July 31, 1902, the second squadron consisted of the *Brooklyn*, *Olympia*, and *Mayflower*, other vessels being added from time to time and detached as the need of the service during the search problem and combined maneuvers with the Army demanded. The squadron was engaged in the search problem off the New England coast from August 20 to 24, 1902, and from August 31 to September 6 was engaged in the combined maneuvers, during which time it was composed of the *Brooklyn* (flagship), *Olympia*, *Massachusetts*, *Puritan*, *Montgomery*, *Mayflower*, *Gloucester*, *Peoria*, *Leyden*, and *Aileen*. The

Olympia became flagship of the squadron on September 20, 1902. On October 4, 1902, the designation of the force was changed from second squadron to Caribbean division, United States naval force, North Atlantic Station, and the following vessels were assigned: *Olympia* (flagship); *Montgomery*, *Detroit*, *Marietta*, *Machias*, and *Panther*.

On October 26, 1902, the squadron sailed for Culebra, via San Juan, P. R., arriving at the former place November 1, where work was immediately begun upon the preparation of the base for the mobilization of the fleet at that place the latter part of December and carried on until the beginning of the search problem December 5, 1902, when the departure of all the vessels except the *Vixen* practically reduced the working force to the marines alone. After the dispersal of the combined fleet in January, 1903, the vessels remaining at Culebra were the *Olympia*, *Panther*, *Atlanta*, *Vixen*, and the tug *Potomac*, together with the *Culgoa* and *Panther*.

In accordance with the Department's order of December 29, 1902, the designation of the force was changed from Caribbean division, United States naval force, North Atlantic Station, to Caribbean Squadron, North Atlantic Fleet.

From January 6 to June 30, 1903, during which time the work at Culebra was continued, the squadron made a cruise to the southward as far as Trinidad, the coast of Honduras was visited, and a portion of the squadron joined the battle ships at Pensacola. The vessels of this squadron were also engaged at various times in protecting American interests in Venezuela, Haiti, Santo Domingo, and Honduras.

During the outbreak in Santo Domingo in the months of March and April the *Atlanta* was sent there to protect American interests and rendered efficient service and exerted a marked influence in preventing unnecessary bloodshed and bringing about peace. During the latter part of the time the *San Francisco* was in Santo Domingan waters, relieving the *Atlanta* and continuing the service in which that vessel had been engaged.

The *Marietta*, under the command of Commander S. W. B. Diehl, was stationed on the coast of Venezuela during the Venezuelan troubles. Efficient service was rendered by this vessel and excellent judgment displayed by her commanding officer in dealing with the delicate international situations attending the unusual conditions which existed on the coast of Venezuela during the blockade.

The U. S. S. *Panther*, having on board a battalion of marines, consisting of about 300 men, has formed a part of the Caribbean Squadron. It is believed that great advantage will be derived from having such a battalion ready at all times to be landed in case of disorders on shore or for other military purposes. The experience derived by such a marine battalion when landed at Culebra and other of our outlying possessions has been extremely valuable.

COAST SQUADRON.

The Coast Squadron was organized on May 19, 1903, and at the end of the fiscal year had not been completely mobilized, many of the vessels being still under repairs at the navy-yards.

This squadron, which is composed of the *Texas* (flagship), *Indiana*, *Arkansas*, *Nevada*, *Florida*, and a flotilla of five destroyers, will be one of the principal elements in the general strategic plan for the naval

defense of the country, and it is contemplated that it will be used primarily for the defense of our coast and secondarily as a reserve force ready to strengthen our principal fleet in the West Indies. It is intended that this squadron shall be composed of powerful ships, such as our new monitors, which, though formidable in battle, are not intended for distant cruising or continuous foreign duty, and are therefore not desirable for service in the Battleship Squadron. It will have such other ships as shall no longer be desirable for the Battleship Squadron.

As the Caribbean Squadron is based upon Culebra, or perhaps later upon Guantanamo, so the Coast Squadron is to be regularly based upon Key West and its vicinity, which is a convenient central position with reference to the Atlantic coast, the Gulf of Mexico, and the West Indies.

This force finds active employment in other directions during the summer months, when it is used as the practice squadron for the midshipmen at the Naval Academy. The increased number of midshipmen makes it necessary now to have a large squadron in order to give them the practice they need, and the use of an active cruising squadron for this purpose has already proved beneficial. The midshipmen become familiar during their summer practice with the routine and customs of a squadron in active service, which it is believed will make them more quickly available upon graduation from the Naval Academy to enter upon the active duties of their profession. This is the more desirable for the reason that, on account of the great lack of commissioned officers, the midshipmen after graduation at once assume positions of considerable responsibility on entering active service, and therefore their instruction at the Naval Academy must in some degree prepare them at once to assume responsible duties. Captain Brownson, superintendent of the Naval Academy, is ably seconding the Department's views in this respect and preparing the midshipmen for their active duties in the Navy.

THE TRAINING SQUADRON.

Those training ships of the Navy which cruise actively have been organized into a training squadron, and Rear-Admiral W. C. Wise was ordered to hoist his flag on July 1, 1903, as commander in chief of that squadron.

This squadron is independent and does not form a part of the North Atlantic Fleet, as do the battleship, the Caribbean and the Coast Squadrons.

The vessels composing the Training Squadron will be as follows:

Vessel.	Duty.
Alliance	Training landsmen and apprentices.
Buffalo	Do.
Prairie	Do.
Topeka	Do.
Yankee	Do.
Monongahela	Do.
Hartford	Do.
Essex	Do.
Minneapolis	Training engine-room force.
Columbia	Do.

The Training Squadron has been formed, not for the purpose of maneuvering and tactical exercises, but for the convenience of administration. The system heretofore has been to leave the ships to their individual devices, preserving uniformity of method, so far as possible, by regulations issued from this Bureau and by inspections made from time to time by officers attached to the Bureau.

This system has had some success, when the number of men in the Navy was small and the number under training insignificant; but it is believed that with several thousand under training at one time it will be impracticable to govern the details and insure energy and uniformity of effort through the personal superintendence of the Bureau.

The cruises will be from two to three months in length, and there will be several months in the year in which they will be united under the flag of the admiral commanding the squadron for purposes of drill and various exercises. It is believed that by competition and healthy rivalry a marked impulse will be given to the system of training afloat.

This squadron will be based upon Hampton Roads for the present, where it will rendezvous about three times each year.

It will be observed that the irregular character of this squadron and the diverse types of ships of which it is composed is undesirable. Economy would indicate that we should have a number of vessels similar in class and size, each being used for training ships in peace and available as cruisers in war. Of these vessels now employed, the purchased vessels of the *Prairie* and *Yankee* class would be of considerable service during hostilities, having large coal endurance and fair speed. On the other hand, these ships from their unlikeliness to men-of-war are not so desirable for training apprentices. True economy will be furthered by building a type of training vessels which would be useful in war. Eight such vessels would be required, and should be of the size of the *San Francisco*, with a sea speed of 16 knots and with large coal endurance, but with such reductions in armament as to be capable of berthing a large number of men. Of these eight vessels two should be fitted as flagships.

SOUTH ATLANTIC STATION.

On July 1, 1902, the South Atlantic Squadron consisted of the *Iowa* and *Atlanta*. The usual visits at ports of the station during the healthy season were made and various exercises and target practice carried on. The *Atlanta* sailed November 1, 1902, from Montevideo for the rendezvous in the Gulf of Paria to participate in the combined maneuvers. The *Iowa* left Montevideo November 6, 1902, for Rio de Janeiro to participate in the ceremonies attending the inauguration of the new President of Brazil, and left Rio de Janeiro on November 18 for the Gulf of Paria, arriving there on the 29th.

This squadron took part in the maneuvers in the West Indies, Rear-Admiral G. W. Sumner being in command of the second squadron, composed of eight cruisers. For purposes of fleet organization his squadron was amalgamated with the other squadrons, it not being sufficiently homogeneous to form a divisional or squadron unit of the large fleet. An effort was made upon the dispersal of the fleet to correct this mistake, and a squadron composed of the *Newark*, flagship,

Detroit, *Montgomery*, and *Gloucester* was sent back to the South Atlantic Station, the Department hoping to send another cruiser of proper size to make at least some similarity in type throughout the squadron. Unfortunately it has so far been impracticable to give this squadron a proper composition of vessels. Rear-Admiral Sumner has done the best possible with the force at his disposal throughout the year.

The least number of cruisers desirable for this squadron would be six, four of a scout cruiser type and two of an improved *Olympia* type. Of the cruisers now in service and building, three could be spared for the South Atlantic Squadron, leaving three to be provided.

In the development of the fleet this force is intended to be assigned to the South Atlantic Squadron during peace for purposes of tactical drills and incidentally to care for American interests in that region. In case of war this squadron would be united with other squadrons in the West Indies, forming thus a fleet of considerable strength.

EUROPEAN STATION.

On July 1, 1902, the European Squadron consisted of the *Illinois*, flagship, *Chicago*, *San Francisco*, *Albana*, and *Nashville*.

During the fiscal year the following changes have been made:

The *Kearsarge* was attached to the squadron from June 3 to June 30, 1903.

The *San Francisco* was detached on August 27, 1902, returning to the United States on special duty, and was reattached again on June 7, 1903.

The *Albany* was ordered to Boston upon the completion of the winter maneuvers, and was reassigned to the squadron on January 19, 1903. She was again detached on May 21, 1903, and ordered to report to the commander in chief of the Asiatic Fleet.

The *Cincinnati* was attached to the squadron on January 10, 1903, the *Raleigh* on May 1, 1903, and both were detached on May 21, 1903, and ordered to report to the commander in chief of the United States Asiatic Fleet.

The *Nashville* was detached January 4, 1903, at Culebra, and ordered to the United States.

The *Machias* was attached to the squadron January 8, 1903.

Rear-Admiral Crowninshield, with his squadron, joined the fleet at Culebra December 11, after meeting Rear-Admiral Sumner in the Gulf of Paria, from which place the two squadrons took part in a search problem, ports in Porto Rico being the objective.

Upon the dispersal of the fleet at Culebra Rear-Admiral Crowninshield, on January 10, 1903, transferred his flag to the *Chicago*, and the *Illinois* was assigned to the Battle-ship Squadron of the North Atlantic Fleet, in pursuance of the plan to assemble all the battle ships of the Navy in two principal fleets, one in the North Atlantic Station and one in the Asiatic Station. Upon the completion of the winter maneuvers the squadron returned to Europe.

On April 29, 1903, the European Squadron, consisting of the *Chicago*, flagship, *Albany*, *Cincinnati*, and *Machias*, arrived at Marseille for the purpose of saluting the President of France on his return from Algeria. On the afternoon of the same date the *Jeanne d'Arc*, having

the President of France on board, arrived, and the squadron fired a salute of 21 guns, which was returned gun for gun by the *Jeanne d'Arc*.

The reception of the squadron by the President of France was cordial in the extreme, and the squadron's visit made an excellent impression and was greatly appreciated by the Government and people of France.

The U. S. S. *Kearsarge* was detached from the North Atlantic Fleet on June 2, 1903, and ordered to Southampton, England, to join the European Squadron as flagship during that squadron's visit to Kiel, Germany. She sailed on June 2 from the navy-yard, New York, and arrived at Southampton June 14, at which place Rear-Admiral Cotton hoisted his flag on board the *Kearsarge* on June 16. From thence she proceeded, on June 17, with the European Squadron to Kiel, arriving on June 22, where the squadron was received with marked cordiality and courtesy. Accompanied by his staff the German Emperor paid a visit to the *Kearsarge* on June 25 and was received with imperial honors, and upon leaving expressed to the commander in chief of the European Squadron the pleasure which the visit of our squadron had afforded and his appreciation of the fine condition in which he found the vessels.

It is contemplated that the European Squadron shall be composed of cruisers of the general type before mentioned. Six of these cruisers should be provided for the European Squadron, four of which should cruise together for tactical and squadron work, and one to be used for the visiting of distant and unimportant ports on the station, and one to be under repairs. Of these vessels, which should be identical in size and type, two should be fitted as flagships.

In this connection it should be noted that the Caribbean Squadron, European Squadron, and the South Atlantic Squadron ought to be cruiser divisions of the best type and should attain the highest efficiency in squadron work. They should move about constantly and be frequently interchanged, the South Atlantic shifting to the Caribbean or European and the other two squadrons changing in the same way, thus insuring at all times mobility and strategic efficiency.

It is important that they should be kept at their proper strength, in order that when gathered into a fleet there need not be that rearrangement which was found necessary last winter at Culebra, owing to the heterogeneous composition of the squadrons which assembled there.

PACIFIC STATION.

On July 1, 1902, the Pacific Squadron consisted of the flagship *Wisconsin* and the *Philadelphia*, *Wheeling*, and *Farragut*. During the year the *New York*, *Boston*, *Marblehead*, *Concord*, and *Ranger* were assigned to the squadron, and the *Wisconsin*, *Philadelphia*, *Wheeling*, *Ranger*, and *Farragut* detached. The *Wisconsin* was flagship until December 9, 1902, when the commander in chief transferred his flag to the *New York*.

During the months of October and November, 1902, the flagship *Wisconsin* was at Panama, Colombia, engaged in protecting American interests at that place and preserving the integrity of the transit across the Isthmus. Prior to the arrival of the *Wisconsin* the transit had been so seriously interfered with that Commander T. C. McLean, commanding the *Cincinnati* on the Colon side, and who was in com-

mand of the forces on both sides of the Isthmus, found it necessary to land detachments of men from the *Cincinnati* and from the *Ranger* on the Panama side and put guards on trains. Upon the arrival of the *Panther* the battalion of marines on board that vessel was landed and the companies distributed at Colon and Panama, the detachment from the *Ranger* returning on board that vessel and the blue jackets from the *Cincinnati* alternating with the marines of the *Panther* in service on shore.

After the arrival of the *Wisconsin* Rear-Admiral Silas Casey assumed command of the forces on both sides of the Isthmus and the final settlement of the revolutionary disturbance in that country was largely due to his efforts.

The squadron visited Amapala, Honduras, late in February, 1903, for the protection of American interests during the revolution in that country, but after a short stay proceeded to Magdalena Bay for target practice and drills. The latter part of April the squadron proceeded to San Diego, Cal., thence to San Pedro, Cal., and early in May the entire squadron arrived at San Francisco, Cal., where it participated in the naval reception to the President of the United States during his visit to that city.

The Pacific Squadron is one of those known as cruiser squadrons, and should consist of two divisions of four cruisers each, but hitherto it has not been found practicable to have more than four vessels actively cruising. There is needed for this station a squadron of nine cruisers of good size and of modern construction, five of an improved *Olympia* type and four of a scout cruiser type, of which we have now but two, seven more being necessary, three of scout cruiser type and four of improved *Olympia* type.

The Pacific Squadron, which spent much of its time formerly in single ship cruising, having now been gathered under the admiral's flag, efforts are being made in this, as in other squadrons, to prevent the scattering of the vessels which has become in years past a custom which it is difficult to break. Admiral Glass is about sailing at the period of the conclusion of this report for the Aleutian Islands with four ships for a cruise of tactical exercises, and also for the purpose of making an examination of the above-mentioned islands.

The extent of this station and our interests in the Pacific make it impracticable to do the work properly with less than two divisions of four cruisers each. It is not contemplated that these divisions shall interchange with other squadrons and divisions as frequently as in the case of the squadrons in the Atlantic, but it is deemed advisable that one division of four cruisers should from time to time visit the west coast of South America, and when desirable could interchange with the South Atlantic Squadron at the Straits of Magellan. It is possible, and also desirable, that a division of this squadron should occasionally interchange with the cruiser division of the Asiatic Fleet, meeting for that purpose at a common rendezvous at Honolulu or in the Aleutian Islands.

It is essential to efficiency that this habit of mobility be established for the squadrons of the United States Navy. Some objections may be found, notably, that squadrons will not be so long at any one station, and therefore not so familiarly acquainted with it. This defect must, however, be endured for the greater good that will come from acquiring the habit of mobility.

ASIATIC STATION.

The Asiatic Fleet on July 1, 1902, consisted of the following vessels: *New York*, flagship of commander in chief; *Kentucky*, flagship of senior squadron commander; *Rainbow*, flagship of junior squadron commander; *Monterey*, *Glacier*, *Celtic*, *Iris*, *Monadnock*, *New Orleans*, *Yorktown*, *Wilmington*, *Helena*, *Monocacy*, *Don Juan de Austria*, *Isla de Luzon*, *Isla de Cuba*, *Annapolis*, *Vicksburg*, *Princeton*, *Zafiro*, *General Alava*, *Frolic*, *Quiros*, *Villalobos*, *Pampanga*, *Samar*, *Paraqua*, *Arayat*, *Urdaneta*, *Piscataqua*, *Wompatuck*, and the colliers *Saturn*, *Nanshan*, and *Pompey* and the water ship *Arethusa*.

The following vessels were detached and have sailed for the United States:

Arethusa, on August 9, 1902; *Isla de Luzon*, on August 15, 1902; *New York*, on October 29, 1902; *Saturn*, on March 5, 1903; *Glacier*, on April 20, 1903; *Yorktown*, on May 3, 1903, and the *Princeton*, on May 6, 1903.

The following vessels have been attached during the fiscal year:

Oregon, at Yokohama, December 13, 1902; *Albany*, *Cincinnati*, and *Raleigh*, at Aden on June 8, 1903, and the *Wisconsin*, at Yokohama, June 12, 1903.

The *Villalobos*, *Elcano*, and *Callao* were placed in commission during the fiscal year, and the *Arayat*, *Basco*, *Panay*, *Calamianes*, *Marivales*, *Villalobos*, and *Paragua* were placed out of commission. The dates of commissioning and of going out of commission of the foregoing vessels will be found in Appendix A.

Our force on the Asiatic Station has grown to such a size that it has been deemed advisable during the last year to organize it as a fleet of three squadrons, as in the North Atlantic Fleet. The stragetic conditions are in some respects different, but the general situation demands there a battle-ship squadron, a cruiser squadron, and a squadron of small vessels. No well-defined cruiser squadron existed, nor was there a sufficient number of cruisers of proper size and class to form such a squadron. A division of three cruisers has therefore been sent to the Asiatic, and is approaching that station at the date of the closingof this report. They are the *Cincinnati*, *Raleigh*, and *Albany*, which with the *New Orleans* already on the Asiatic Station, will form a somewhat homogeneous squadron of four cruisers, to which others may be added at the discretion of the rear-admiral in command of the Asiatic Fleet.

This organization of the force into three squadrons will take time to complete and perfect, but there is no reason to doubt that it will proceed on these lines.

The natural base of the three squadrons is the Philippines. Mention has been made elsewhere of a naval base at Olongapo, and I need only add here that the maintenance of this force in the Philippines and its readiness for use are dependent upon the naval base and dock yard at that point.

The operations of the Asiatic Fleet in Chinese waters have been of a peaceful nature, with the exception of those of the *Callao* up the river at Canton for the protection of American railway engineers who had been attacked by a Chinese mob on April 30, and again in the month of June, when the same vessel was dispatched up the river for the purpose of rescuing an American citizen who had been kidnaped

by Chinese robbers. The prompt and energetic action of the commanding officer of the *Callao*, Lieut. E. A. Anderson, resulted in the immediate restoration of order and the rescuing of the kidnaped man.

The *Monadnock* has been stationed at Shanghai and her commanding officer has had general charge of the gunboats operating in the Yangtsze River and its tributaries. The *Monocacy* remained moored in the Peiho River during the open season at Taku and during the winter in the mud dock at Tongku. As this vessel is unseaworthy her operations were confined to a limited area, and as she is now of little value to the Government it is contemplated selling her at an early date.

During the period of this report Rear-Admiral Evans, the commander in chief of the United States Asiatic Fleet, visited in his flagship, the *Kentucky*, the following ports: Amoy, Hongkong, Cavite, Manila, Subig Bay, Labuan, Singapore, Woosung, Nagasaki, Yokohama, Yokosuka, Kobe, Chefoo, and Taku. At Singapore he was cordially received by the governor of the Straits Settlement. Leaving the flagship at Taku the commander in chief visited the United States minister at Peking, and upon his request was granted an audience with the Empress Dowager and the Emperor of China, and his reception by them was indicative of the most friendly feeling for the United States.

In the month of February the commander in chief shifted his flag to the dispatch vessel *Zafiro* and visited the following ports in the Philippines: Catbalogan, Tacloban, Cebu, Zamboanga, Port Isabela, Malabang, Pollok, Kotta, Jolo, Siassi, Bongao, and Sandakan, and also Labuan, British North Borneo, at which place he reembarked on board the *Kentucky*. On March 19 he transferred his flag temporarily to the *Helena*, and went to Canton in that vessel and exchanged visits with the viceroy of that place.

The commander in chief of the United States Asiatic Fleet recommends that the principal naval station in the Philippines be established at Olongapo, Subig Bay, it being the most advantageous point in the matters of defense, harbor facilities, and healthful conditions of any place in the islands. For this and other reasons this Bureau heartily concurs in the recommendation of the commander in chief.

So far as conditions ashore in the Philippines are concerned, there has been a general state of peace and the Navy has not been called upon to take part in active operations, with the exception of the patrol of the southern coast of Mindanao and of the Sulu Islands to assist the Army in checking supplies for the Moros and the suppression of illicit traffic of all kinds by means of boats. The vessels engaged in this patrol work have done their work thoroughly and their presence has been of material assistance in maintaining a state of peace among the Moro coast tribes, such tribes having a great fear of and respect for a gunboat. These gunboats have done much cruising among the islands indicating by their presence that the Government takes an active interest in maintaining order through the islands.

Some surveying was done at various points on the Moro coast and among the islands by the *Annapolis*, *Princeton*, *Yorktown*, *Quiros*, *Samar*, *Frolic*, and *Albay*, but owing to the fact that the services of the vessels and officers were needed elsewhere these vessels were withdrawn from surveying duty.

In accordance with the policy of the Navy Department the vessels of the squadrons of the Asiatic Fleet have been assembled on different

occasions during the year, and the fleet was mobilized during the winter season and a predetermined programme embracing fleet maneuvers was carried out. This mobilization was affected by joining the ships of both the Northern and Southern Squadrons at Cavite. This fleet consisted of the *Kentucky*, flagship of commander in chief; *Rainbow*, flagship of Southern Squadron commander; *New Orleans*, *Helena*, *Yorktown*, *Vicksburg*, *Annapolis*, *Don Juan de Austria*, *Isla de Cuba*, *Frolic*, *Eleano*, *Quiros*, *Samar*, *Callao*, *Albay;* the tugs *Pisctaqua* and *Wompatuck;* the supply repair and distilling ship *Iris;* the supply ship *Zafiro;* the refrigerator ship *Celtic*, and the colliers *Nanshan*, *Saturn*, and *Pompey*. Before the end of the month the *Princeton* and *General Alava* joined the fleet in Subig Bay, but the latter, upon inspection, was found in very bad condition and was put out of commission at Cavite for general overhauling.

A full report of the operations of the fleet, involving an advance of the entire fleet on Subig Bay from Manila for the mock attack, seizure, and defense of that bay, as an advanced base, and the landing of an expeditionary force on Grande Island in the mouth of the bay for occupancy and temporarily fortifying that island in connection with the defense of the advanced base and the subsequent fleet exercises off the coast of Luzon between Subig and Manila Bay and in Manila Bay, followed by individual ship target practice and special target practices with diving submarine and surface torpedo-boat models under the direct supervision of the commander in chief, together with inspections of ships, etc., has been made to the Department, and is appended hereto.

The results attending this mobilization are most satisfactory to the Bureau, and the commander in chief is entitled to great credit for his ability in organizing and his energy in the execution of the plans of these maneuvers.

Target practice, under the new system of instruction, has shown marked improvement among the vessels of this fleet, and the improvement in marksmanship, as well as in discipline and in all matters tending to promote the efficiency of the fleet, is the result of the untiring work of the commander in chief, officers, and men under difficult conditions.

There is needed for this station six cruisers of an improved *Olympia* type and four cruisers of the scout cruiser type, of which we can now furnish two, leaving two yet to be provided.

The commander in chief of the Asiatic Station recommends that two vessels, small gunboats or large launches, be built and assigned for service in Chinese rivers for the protection of our interests in such parts of the rivers as our present gunboats, owing to their size, can not operate. Other nations have vessels of this description in Chinese waters, and as American interests in China are growing, it is earnestly recommended that such vessels as are requested by the commander in chief be immediately provided for the above-mentioned service.

Before leaving the subject of the Asiatic Station, the Bureau desires to call the attention of the Department to the very efficient service rendered by the commanders in chief of the Asiatic Fleet. This fleet was under the command of Rear-Admiral Frederick Rodgers until October 29, 1902, when he was relieved by Rear-Admiral Robley D. Evans. The military efficiency of the fleet, including marksmanship and discipline, has been markedly advanced by the efforts of the com-

manders in chief, and the progress in promoting such efficiency has been continuous and uninterrupted.

Rear-Admiral Frank Wildes, on his way home on sick leave from a squadron command in the Asiatic Fleet, became worse as he approached San Francisco and died on February 6, 1903, on board the steamer *China*, just before that vessel's arrival in port.

This officer, who remained at his post of duty in a trying climate until his health was seriously impaired, is a loss to the Navy and to the fleet in which he served. His long naval experience, including service in two wars—the war of the rebellion and the Spanish war—rendered him of great value to the Navy and to the country. In both of these wars he was distinguished in battle, and was promoted for gallant conduct in the battle of Manila.

His loss has been deeply felt throughout the Navy.

CRUISERS.

Squadrons of cruisers will be needed in case of war as auxiliaries to the battle ships, while in time of peace they are best suited to carry on the various duties which our country's interests demand in the Caribbean and Spanish Main, and upon the east and west coasts of South and Central America. Such interests as we have in Europe will also be best served by this class of cruiser.

The Bureau has taken into account vessels of the *Denver* and *Cleveland* class when they shall be ready, but finds that even with these vessels a large number of cruisers will be very necessary during the coming few years. The Bureau has felt the need of other types of vessels, especially light-draft vessels for the Chinese and South American rivers; also repair ships and other auxiliaries.

The Bureau refrains from making more definite and specific recommendations in reference to the number and class of cruisers, as well as to the number and class of battle ships, destroyers, and other vessels, to compose our fleet of the future, believing that this subject should receive the careful study of the general board, which will consider the strategic necessities of the country as well as the tactical qualities desirable for our ships.

MOBILIZATION AND CONCENTRATION OF SQUADRONS AT CULEBRA.

These operations included the concentration of the North Atlantic Squadrons—the Battleship and the Caribbean Squadrons; the European, and the South Atlantic Squadrons at Culebra, in the West Indies.

The purpose of this concentration was to exercise the fleet in preparation for active campaigns. Further than this, it was an exercise in organizing an efficient fleet by amalgamating promptly the various squadrons present into a fleet organization.

The final aim was to exercise the squadrons in mobility and accustom them to move through long distances to an appointed rendezvous, and later to disperse with the same readiness to their respective stations.

I respectfully submit that by no other exercise or operation can a fleet be so thoroughly drilled in the work it is required to do, nor in any way be so fully informed and instructed as to the functions of a fleet organization and the relation to it of the squadrons and individual ships.

These exercises were regarded as so important that, by direction of the Secretary of the Navy, the Admiral of the Navy took temporary command of the combined squadrons, and the Chief of the Bureau of Navigation was ordered to duty as his chief of staff during that period. Admiral Dewey was further aided by Capt. William Swift and Capt. J. E. Pillsbury, members of the general board; his personal aid, Commander Nathan Sargent, Naval Constructor J. J. Woodward, Lieut. Commander Alfred B. Canaga, and Lieut. Commander W. S. Sims, inspector of target practice. Colonel Livermore, of the Engineer Corps, U. S. Army, acted informally as a member of Admiral Dewey's staff.

The detailed report of these maneuvers is appended to this report.

VESSELS ON SPECIAL SERVICE.

The *Mayflower* was employed as the flagship of the Admiral of the Navy during the maneuvers in the West Indies, and also on the occasion of the inspection of the North Atlantic Fleet on the Southern drill grounds the latter part of April. She was temporarily attached to the North Atlantic Fleet on June 2, and sailed with the fleet on June 25 for the Azores.

The *Michigan* carried on survey work in northern Lake Michigan, made searches for wrecks in the Great Lakes, and at the close of this report is cruising with the Naval Militia of the State of Michigan.

Extensive surveys have been carried on by the *Eagle* and *Yankton* on the coast of Cuba. The *Eagle* was temporarily diverted from surveying work the latter part of November, and directed to proceed to the Gulf of Paria and report to the commander in chief of the South Atlantic Squadron for duty as tender to that squadron during the search problem and combined maneuvers in the West Indies. She was detached at the conclusion of the evolutions and resumed her surveying duty.

The *Dolphin*, in addition to her other duties, was sent on a special mission to Venezuela to transport Minister Bowen from that country to the United States.

The *Solace* has performed transport service between San Francisco, Cal., Honolulu, Hawaii, Guam, China, and the Philippine Islands.

TORPEDO BOATS.

The Torpedo Flotilla, under the command of Lieut. Lloyd H. Chandler, consisting of the *Decatur*, destroyer, *Bagley*, *Barney*, *Biddle*, *Shubrick*, *Thornton*, and *Stockton*, was temporarily assigned to the North Atlantic Fleet during the summer maneuvers in August, 1902, and much valuable work was accomplished. This flotilla was also engaged in the combined maneuvers in the West Indies, and its operations will be found in the report of these maneuvers appended hereto.

Upon the completion of the maneuvers in the West Indies the flotilla returned to the Norfolk Navy-Yard, where all the boats except the *Decatur* were placed in reserve, and a flotilla, designated as the "First Torpedo Flotilla," consisting of the destroyers *Decatur*, *Bainbridge*, *Barry*, *Chauncey*, and *Dale*, was organized under the com-

mand of Lieutenant Chandler, which, at the close of the period of this report, is attached to the Coast Squadron, North Atlantic Fleet, and is preparing to participate in the summer maneuvers off the New England coast.

A Second Torpedo Flotilla consisting of the destroyers *Truxtun*, *Lawrence*, *Whipple*, *Worden*, and *Stewart*, has been organized, under the command of Lieut. Archibald H. Davis.

It is contemplated sending the first torpedo flotilla to the Asiatic Station via the Suez Canal, and attaching the second torpedo flotilla to the Coast Squadron.

NAVAL COLLIERS.

The collier service has been performed during the year by the *Ajax*, *Alexander*, *Brutus*, *Cæsar*, *Hannibal*, *Iris*, *Justin*, *Lebanon*, *Leonidas*, *Marcellus*, *Nanshan*, *Nero*, *Pompey*, *Saturn*, *Sterling*, and *Zafiro*.

One collier, the *Abarenda*, is now preparing for service with naval officers and naval crew. The change of the others from merchant to navy crews will go on slowly because of the present deficiency of officers, but it is hoped that nothing will prevent this being finally accomplished, for it is an important factor in the efficiency of the fleet that these colliers be officered and manned by naval crews.

The conditions which exist at present with reference to the payment of the crews, the rationing of them by the captains, and the repairing of these vessels abroad are not satisfactory and a change should be made. The captains of the colliers have shown ability and seamanlike qualities and are not responsible for the unfavorable conditions which at the present time surround this service. The only remedy is to have the colliers officered and manned by regular naval crews and under naval customs and regulations.

A further reason for this, as was stated in last year's report, is the opportunity for training seamen and the engineer's force in such ships, thus making them useful as training ships, in addition to their work as colliers.

During the past year it has been found that the active squadrons can not efficiently perform their work unless there be permanently connected with them sufficient colliers to enable them at short notice to move in any direction and to any distance the Department may desire. Lack of colliers for the Caribbean and Pacific Squadrons has been a source of embarrassment. The Battle Ship Squadron of the North Atlantic Fleet, which, at the close of this report, is on a cruise to the Azores, has taken with it three colliers, and word has been received that the fleet coaled from them in the open sea with a rapidity which could hardly be exceeded alongside a coal dock. The speed of these colliers is, however, a cause of delay to the squadron.

I respectfully recommend that colliers be hereafter permanently attached to squadrons, and that they have a speed of 15 knots. I also recommend that six such colliers be appropriated for, to be built upon plans prepared by the Navy Department.

REPAIR PERIOD FOR VESSELS IN COMMISSION.

The efficiency of the fleet is largely dependent upon continuous active exercises afloat. The length of time spent by the vessels of the

North Atlantic Fleet at navy-yards militates against this efficiency. The ships of the North Atlantic Fleet, during the twelve months ending July 1, 1903, were at the navy-yards for repairs as follows:

Name of vessel.	Navy-yard.	Period.	Days.
Alabama	New York	July 1 to 15, 1902	15
		Sept. 10 to Nov. 8, 1902	59
		May 2 to June 20, 1903	59
Total (36 per cent).			133
Kearsarge	New York	July 1 to 15, 1902	14
		Sept. 8 to Nov. 7, 1902	60
		May 4 to June 3, 1903	30
Total (28 per cent).			104
Indiana	New York	Sept. 8 to Nov. 12, 1902	65
		Apr. 20 to May 27, 1903	37
Total (28 per cent).			102
Massachusetts	New York	July 1 to 16, 1902	15
		Sept. 17 to Nov. 8, 1902	52
	Boston	May 20 to June 20, 1903	30
Total (27 per cent).			97
Texas (placed in commission at Norfolk, Nov. 3, 1902).	Norfolk	Nov. 3 to 28, 1902	25
		May 1 to 19, 1903	18
	Boston	June 21 to 26, 1903	5
Total (20 per cent).			48
Olympia	Boston	July 1 to 12, 1902	11
	New York	July 17 to 22, 1902	5
	Boston	Sept. 8 to Oct. 16, 1902	38
Total (15 per cent).			54

The average percentage of time at a navy-yard has been approximately 25 per cent; the greatest of any battle ship, 36 per cent.

It will be perceived that these periods are too long and that they interfere with the attainment of efficiency. The Bureau of Navigation recommends that the Department take steps to improve this condition of affairs, and suggests that vessels of the North Atlantic Fleet visit the navy-yards for repairs only once a year, October and November being the most convenient. The Bureau of Construction and Repair has lately made recommendation similar to the above.

ARMY TRANSPORTS TRANSFERRED TO THE NAVY.

By agreement with the War Department, the army transports *Hancock*, *Lawton*, and *Relief* were transferred to the Navy Department in November, 1902. The *Hancock* was commissioned November 20, 1902, at Mare Island, Cal., and sent around the Horn to the navy-yard, New York, where she has been fitted out as a receiving ship. The *Lawton* is stationed at Yerba Buena as an additional receiving ship and the *Relief* is at Mare Island.

TRAINING OF APPRENTICES.

Some of the improvements at the naval training stations—Narragansett Bay, Rhode Island, and San Francisco, Cal.—for which provision

was made in the act approved July 1, 1902, have been completed. The remainder are in course of construction. The act approved March 3, 1903, provides for additional barracks, etc., for apprentices and landsmen for training at Narragansett Bay, Rhode Island; also for two steel ships and one wooden brig, propelled by sail, to be used for training purposes. When these improvements and vessels are completed much of the inconvenience of the training station at Narragansett Bay, Rhode Island, will have been overcome.

Congress made no provision last year for the relief of the training station on the Pacific coast, but the suggestion in the previous report of the Bureau regarding one of the army transports offered to the Navy Department, by the courtesy of the War Department, was adopted, and the transport *Lawton* will soon be available.

The conditions at the training station, Yerba Buena Island, San Francisco, Cal., require the entire area of the island. As the War Department occupies a portion of the island, there remains insufficient space for the needs of the training station. As a result, the training station, where a recruit receives his first impressions of the service, is overcrowded and uncomfortable. It is, therefore, suggested that the training station now at Yerba Buena be transferred to San Diego, Cal. San Diego offers good facilities for training, the climate is healthy, the weather condifions almost continuously favorable for drilling, both afloat and ashore, and in lieu of barracks, for the present, the transport *Lawton* could be stationed at that point as headquarters for landsmen for training, where they could be prepared for efficient service on cruising vessels.

It is not the most desirable arrangement to have apprentices of 15 to 17 years of age so closely associated in preparatory training with landsmen of 18 to 25 years; besides, the course of instruction for apprentices differs somewhat from that which is prescribed for landsmen for training.

The Department has issued an order authorizing a change in the minimum age of apprentices upon entering to 16 years, to take effect January 1, 1904, and contemplates changing the age to 17 years on July 1, 1904. It is believed that the age of landsmen upon entering can be reduced to 17 instead of 18 years. When this is done the Bureau will be able to use the barracks and other facilities provided for both landsmen and apprentices. At Narragansett Bay, Rhode Island, and Yerba Buena, California, the course of instruction for apprentices has not been changed, but at Narragansett Bay the Bureau hopes to have three converted yachts in service with a view to improvement in the present course of instruction.

The *Essex*, *Hartford*, and *Monongahela* have been used as cruising vessels for apprentices on the Atlantic coast and the *Alert* on the Pacific coast.

TRAINING OF LANDSMEN.

This class of men have received preparatory instruction at League Island, Pa., Norfolk, Va., and Yerba Buena Island, California. At League Island the men were quartered on board the *Minneapolis* and *Puritan*, and at Norfolk on board the *Franklin* and *Richmond*.

At the training stations on shore the course of instruction for landsmen for training is limited to three months, during which they are

taught: Care of person, clothing and bedding, handling of boats, contents of Recruit Manual, Infantry Drill, Small Arms Firing, Compass, Helm and Lead, and are drilled in loading 4-inch or 5-inch B. L. rifle, dummy charged and pointing. Short trips in tugs or converted yachts are so arranged that each division shall have at least one such trip while at the station. On these trips they are required to take the helm, heave the lead, etc., and are instructed in anchoring and getting under way.

INSTRUCTION OF ELECTRICIANS IN WIRELESS TELEGRAPHY.

There are at present about 13 electricians detailed for instruction in wireless telegraphy. This school it is hoped will enable the Bureau to furnish as the service demands properly qualified persons to operate the instruments, which will be supplied to cruising vessels. Recruiting officers are now enlisting electricians to operate the instruments recently purchased by the Bureau of Equipment and it is expected that in time a class of 75 men will be under instruction. The *Prairie* and *Topeka* have been engaged in this instruction in connection with instruments mounted on shore.

CRUISING TRAINING SERVICE.

The Atlantic training squadron which was organized on July 1, 1903, under the command of Rear-Admiral W. C. Wise, will make cruises on the Atlantic coast, the Gulf of Mexico, the West Indies (Windward Islands), and short trips abroad during the winter months.

The commander in chief will have jurisdiction over all men transferred to the cruising training squadron from the date of transfer to the training ships until their transfer therefrom. These ships are to make three cruises annually.

The Bureau submits the estimated number of men who will receive training annually. From this number 10 per cent is to be deducted as the proportion of those who are undesirable or who desert, leaving the probable number to be transferred to cruising vessels:

Engine-room force:	
Columbia, 3 cruises, 120 men each cruise	360
Minneapolis, 3 cruises, 120 men each cruise	360
	720
Less 10 per cent	72
Total	648
Landsmen for training:	
Buffalo, 3 cruises, 400 men each cruise	1,200
Prairie, 3 cruises, 400 men each cruise	1,200
Yankee, 3 cruises, 400 men each cruise	1,200
Panther, 3 cruises, 400 men each cruise	1,200
	4,800
Less 10 per cent	480
Total	4,320

Apprentices:	
Alliance, 3 cruises, 150 men each cruise	450
Hartford, 3 cruises, 250 men each cruise	750
Monongahela, 3 cruises, 200 men each cruise	600
	1,800
Less 10 per cent	180
Total	1,620

RECAPITULATION.

Engine-room force	648
Landsmen for training	4,320
Apprentices	1,620
Total	6,588

GUNNERY TRAINING.

The system of training for the development of gun pointers and gun crews that is now in force has proved satisfactory, and was fully illustrated by the firing tests for accuracy by the new pointers of the Battleship Squadron of the North Atlantic Fleet at Pensacola, in April last, as well as by the marked improvement in the practice of the Asiatic Fleet.

This system has been made uniform throughout the service, and future target practices and annual tests of efficiency will be carried out at fixed times and places and under conditions that will insure fair competition between ships, gun crews, and pointers.

In order to render the conditions of competition at the annual record practice as uniform as possible, and in order to stimulate the spirit of competition, it is intended that all squadrons will hereafter hold their target practice with all vessels assembled on the same target ground; and for the annual record practice, as many squadrons as practicable will be combined and carry out their practice on adjacent ranges. This practice will take place during the first quarter of each year. The three squadrons of the North Atlantic Fleet will be assembled with the European and South Atlantic Squadrons in Florida Bay, near Key West, during March next for this purpose.

In order further to stimulate competition and to promote permanency in the important positions of gun pointer and gun captain, etc., the President has ordered that $5 extra pay per month shall be given to all gun captains, and from $2 to $10 extra pay per month, according to class, to all qualified gun pointers, and has directed that the rating of turret captain be established with pay from $50 to $70 per month.

In addition to the above prizes will be awarded from the appropriation of $120,000 for gunnery exercises, 1904, to the best gun crew of each type of gun on each ship, and to a certain number of the best gun crews of each distinct type of gun in the Navy.

The final merit of all ships will be calculated from the records of the guns of the various types on board, and the vessels having the highest final merit will carry suitable trophies throughout the year following the record practice.

It is believed that the above competitive system of training will produce satisfactory results and will be accomplished with a reduced expenditure of ammunition.

The drills and exercises of all men-of-war have been put on a practical basis, many obsolete drills have been discarded, and the time formerly allotted to those of secondary importance has been much reduced, so that the attention of the personnel of each ship can be concentrated on battle-efficiency drills and the training of gun crews to handle readily the types of guns with which the vessel is armed. All gunnery training will hereafter be concentrated on men-of-war in active service, where practically all ammunition used for training purposes will be expended.

Small arm firing instructions for the naval service are now being prepared with the object of rendering them as similar to those of the Army (now in preparation) as the differences in the service required will permit, and with the additional object of limiting them strictly to the needs of the naval service. The requirements for qualifying will be similar to those for men of the Coast Artillery—that is to say, on ranges up to 300 yards, though sharpshooters will qualify up to 600 yards.

Steps have been taken to establish, where possible, target ranges and target galleries at the following places: At all training stations, within reach of all receiving ships; on the various stations, within reach of the places selected for assembling squadrons for target practice, and at Culebra, Guantanamo, Key West, Pensacola, Bremerton, Chefoo, Cavite, and Olongapo.

SCHOOLS FOR PETTY OFFICERS.

These schools, having their origin in the necessities of the service, are producing more capable petty officers of the seaman and artificer branches than the service has obtained prior to this time.

A specified number of men are assigned to each of the several classes, so that they enter a particular class on the same date, and are examined as a class when the course of instruction has been completed. This method is productive of increased effort on the part of individuals, and enables the Bureau to command, periodically, the services of a number of qualified men for particular ratings.

Assignments to the several classes are made from recruits or from men belonging to vessels about to be placed out of commission.

At present classes can be accommodated as follows:

Petty officers' class, seaman branch.—Course of instruction, three months at Newport, R. I.; class of 50 men; course begins on the 1st day of January, April, July, and October.

Seaman gunner class.—Course of instruction, three months at Newport, R. I., and three months at navy-yard, Washington, D. C.; class of 25 men each place; course begins January 1 and July 1.

Machinist and firemen class (torpedo-boat service).—Course of instruction, three months at Newport, R. I.; class of 50 men; course begins on the 1st day of January, April, July, and October.

Machinist class (general service).—Course of instruction, three months at New York; class of 40 men; course begins on the 1st day of January, April, July, and October.

Electricity.—Course of three months at New York, class of 30 men; course begins on the 1st day of January, April, July, and October.

Artificer class.—Course of three months at Norfolk, Va., class of 65 men, viz., 15 carpenter's mates, third class; 15 shipwrights, 10 plumbers

and fitters, 10 blacksmiths, 15 painters. Course begins on the 1st day of January, April, July, and October.

BARRACKS.

The events during the past year have brought to the Bureau's attention the overcrowding of recruits' quarters and the general question of sanitation and hygiene of barracks and receiving ships. The sickness on board receiving ships and in barracks during the spring of this year was for a time serious, but vigorous measures having been used the disease continued to be of a mild type and gradually passed away. This sickness, although happily averted, demands our attention in order to prevent its recurrence.

The illness was due to overcrowding, and the cause of the overcrowding was the necessity for increasing the number of men in the Navy by about 9,000 in nine months. Unless we increase the number of men to such an extent as to have a sufficient number under training, we shall not have enough trained men to handle the future ships now provided for. The Bureau refers not to ships that Congress may provide in the future, but to those which have already been appropriated for. The duty of providing men and training them for these ships can not be overlooked nor avoided. If roomy and healthful quarters are not built for them on shore while awaiting assignment to ships and while being trained for a few months in the elementary duties of a man-of-war's man they must be crowded into quarters and ships too small for their accommodation.

RECRUITING.

In addition to the recruiting which was carried on at the various receiving ships and at the following permanent recruiting stations, viz, Boston, Mass.; New York, N. Y.; Buffalo, N. Y.; Philadelphia, Pa.; Baltimore, Md.; Chicago, Ill.; San Francisco, Cal., there were eight traveling recruiting parties in the field which practically covered the whole United States. The number of men in the Navy reached the maximum for the year in the early part of March, when it was upward of 28,000, about which time Congress authorized an increase of 3,000 men.

On May 16, owing to the outbreak of contagious diseases at the various naval stations and receiving ships, and their limited accommodations for enlisted men, the Bureau was forced to discontinue recruiting until about June 20, when, owing to the ameliorated health conditions and temporary accommodations provided, recruiting in all ratings except apprentices was resumed, the conditions at the naval training station, Narragansett Bay, and at the naval training station, San Francisco, Cal., making the recruiting of apprentices still inadvisable.

DESERTIONS.

In 1901 the percentage of desertions was 14.3; in 1902, 10.5; in 1903, 12.5. The strict rules of quarantine due to the sickness at the naval stations during the spring of 1903 are believed to be accountable for the temporary rise in the percentage.

The officers of the Navy assign various reasons for desertions, and

the enlisted men also differ widely in their opinions of the causes. That assigned by many of the enlisted men, deserters and others, is discontent with the food, some saying that it is not good, others that the methods of cooking and preparation are defective, and still others that the serving of it and the table furniture are not satisfactory.

The improvement of the food for the men, as well as its preparation and service, was carried forward a long way by my predecessor in the Bureau, and I have continued in the same direction. The Bureau believes that defects in the ration do not cause many desertions.

Another cause assigned has been the discomforts as to sleeping accommodations. This defect is inherent in all vessels and probably does not admit of being successfully remedied. The number of men who would desert from this cause is not great. The close quarters on board ship and the use of hammocks to sleep in is a discomfort only for the first few nights, and almost all men can become accustomed to this mode of life.

Another reason assigned has been the confinement on board ship without frequent liberty to visit the shore. To this, as to the food question, the Bureau has given close attention, and has directed that liberty shall be granted the crew whenever practicable. The Bureau is seconded in this by the officers of the Navy. We are aware that the contentment of men on board ship in the present day is largely dependent upon frequent change in the routine of ship life, which can only be derived from shore visiting. With the best that can be done in this respect it is undeniable that a considerable percentage of enlisted men will regard this as an excuse for desertion; and with every effort to reduce this defect to a minimum, it is in a great degree a defect inherent to sea life on board a man-of-war.

Still another cause assigned by a few of the enlisted men for desertion is harshness in language and bearing on the part of officers toward the crew. In a service such as our Navy there will be found among the officers men of various temperaments, and a few of these may have a stern manner. The Bureau can say with certainty that the number of officers who are harsh in manner to the enlisted men is so small as to be negligible in affecting desertion. The tendencies of the naval service at the present day are opposed to it, and no officer could be persistently harsh to his men without receiving the condemnation not only of his captain but of his comrades.

Still another cause which has in years past produced discontent is the disappointment of the recruit who believed that going to sea was an easy and pleasant thing to do. His mind before entering upon his duties dissociates this trade from others, and it is difficult to make him understand that he will have similar work and hardships, together with similar emoluments and pleasures, to those which he finds in the occupation of farmer, bricklayer, or carpenter. He has formed his idea from books, few of which present a serious view of the trade of going to sea. The young man who looks forward to a life of ease and leisure, and the delight of visiting distant lands, is often disappointed when he finds that the drills of a ship, the keeping of her clean, and her guns in good order demand the full term of working hours, and that there is little leisure; in fact, not as much as in most trades ashore. He is therefore in many cases discontented to the point of deserting. He has been deceived, not by the Government or its representatives, but by his own imagination and the literature of the country. Every

effort has been made to correct this evil and stringent orders to that effect have been issued to the recruiting officers.

A certain percentage of desertions may always be counted upon as the result of a restless spirit which is found in many of our young men. It is believed that all trades in the country, civil as well as naval and military, furnish evidence of this. It is not always discontent with the life on board ship that causes desertions, but the desire for change of scene and occupation. Some officers of large experience with enlisted men assert that the majority of all desertions is due primarily to this restless spirit in American young men.

The Bureau estimates that not more than 1 per cent of the force would desert on account of the food, 1 per cent because of the close quarters on board ship, and about 3 per cent on account of restricted liberty to go ashore. From other causes incident to the men themselves, their domestic and social life, and their innate love of change, inducing them to desert, although not dissatisfied with the service, 4 per cent may be allowed. This total is 9 per cent of the force, and when desertions go above that percentage we should examine closely the causes which produce the increase.

In estimating for the future it is believed that this evil of desertion will in the coming years show signs of a steady though slow diminution, due to the many alleviations which have been introduced, and to the rewards now offered to the men who remain in the service. They may rise to the grade of chief petty officer, of which there are at present about 1,124, the pay of which is $70 a month and a ration. There are other grades of petty officers, first, second, and third class, who hold good positions and are well paid, their pay being arranged according to the rates they hold. For all enlisted men who remain in the service an arrangement is made by which they may retire at fifty years of age, after thirty years' service. A large increase in pay is allowed for men who become expert gun pointers. They receive as high as $10 per month in addition to their regular pay. Chief petty officers may become warrant officers in the Navy, giving them a respectable position, in which they rise to $1,800 a year with the privileges of retirement such as commissioned officers receive. In addition to these advantages is the opening of the commissioned grades of the Navy to warrant officers who, up to the number of twelve a year, may become commissioned officers after passing an examination. It is believed that the Navy offers to the enlisted man an opening more desirable in a material and pecuniary way than is to be found in most of the trades in our country. It is recognized that against these advantages are to be set the separation from home and the discomforts of a ship life, but this should not, and in the future will not, be sufficient to prevent good men from making service in the Navy a permanent occupation.

INTERIOR ADMINISTRATION OF THE BUREAU.

By the acquisition of additional space the congested condition of the Bureau, which had prevailed for years past, has been greatly relieved, and has enabled a rearrangement of its offices and clerical force which has done much to facilitate the dispatch of business. The constant growth of the files of the enlisted men's and records' divisions will soon necessitate further expansion.

For its clerical force the Bureau urges the establishment of a higher

standard of salaries, which at the present time is considerably below that prevailing in other bureaus of the Department. The work of the Bureau is increasing daily, and much of it is of so important a character as to demand the service of competent and experienced men. It is to the advantage of this Bureau, which has to do so largely with the details of personnel, to retain competent clerks in its service, and a sufficient prospect of promotion should be held out to incite the best efforts of its employees. With a higher scale of salaries prevailing, increased interest and efforts on the part of its clerical force will be encouraged.

During the past fiscal year new methods of conducting the paper work of the Bureau have been introduced with advantageous results. About 630,000 documents were received and sent out of the Bureau during the fiscal year. This number represents an increase of 26 per cent over the papers handled during the previous fiscal year.

On January 20, 1903, invitations for bids for the transportation of enlisted men of the Navy and Marine Corps were issued to 182 railroad and steamship companies, and bids were received covering every place from and to which transportation may be required. An exceptionally good transcontinental route at an unusually low cost has been secured, with the right reserved to use the rail and water route via New Orleans.

The following tables give statistics of the enlisted force for the year ending June 30, 1903:

	Men.	Apprentices.	Total.
Applied for enlistment	37,565	10,200	47,765
Rejected for physical disability	13,793	4,509	18,302
Rejected for other causes	11,599	2,647	14,246
Accepted but failed to enlist	2,276	748	3,024
Total	27,668	7,904	35,572
Disqualifications waived	626	115	741
Total number rejected	27,042	7,789	34,831
Total number enlisted	10,523	2,411	12,934

Number in service June 30, 1903.

	Native born.	Naturalized.	Aliens declared intentions.	Aliens resident of the United States.	Aliens.	Native born.	Foreign born.	Total.
Petty officers:								
Men	4,257	1,668	337	30	15			6,307
Landsmen for training	533	29	3	2	1			568
Apprentices						254	16	270
Total	4,790	1,697	340	32	16	254	16	7,145
Seamen and other rates	6,651	890	996	227	524			9,288
Landsmen for training	5,741	355	65	10	2			6,173
Apprentices						4,316	222	1,538
Porto Ricans								6
Samoans								68
Filipinos								9
Ladrones								16
Hawaiians								2
Total	12,392	1,245	1,061	237	526	4,316	222	20,100
Total petty officers								7,145
Grand total								27,245

Citizenship.

	Per cent.
Petty officers:	
Native born	70
Naturalized	24
Aliens declared intentions	5
Aliens resident in the United States	1
Men, exclusive of landsmen, for training and apprentices:	
Native born	71.5
Naturalized	9.6
Declared intentions	10.7
Aliens resident in the United States and nonresident	8.2
Landsmen for training:	
Native born	93
Naturalized	5.7
Declared intentions	1
Aliens resident in the United States and nonresident	3
Apprentices:	
Native born	95
Foreign born	5
Total enlisted force:	
Native born	79.8
Naturalized	10.9
Citizens of the United States (an increase of 1.7 per cent over last year)	90.7

Discharges, desertions, and deaths.

	Men.	Apprentices.	Total.
Discharges:			
Expiration of enlistment	1,175	125	1,300
Disability	794	83	877
Services no longer required	31	2	33
Own request	78	3	81
Bad conduct	485	17	502
Illegal enlistment	12	3	15
Inaptitude	112	117	229
Undesirability	490	43	533
By purchase	80	2	82
Total	3,257	395	3,652
Desertions	3,985	251	4,236
During the fiscal year about 1,000 deserters have surrendered or have been delivered on board of receiving ships or other vessels.			
Deaths	117	10	127

Continuous service men:	
Men serving under continuous service June 30, 1903	4,380
Landsmen for training:	
Number enlisted during the year ending June 30, 1903	4,579
Number serving in the Atlantic Training Squadron	1,602
Number in training ships, Pacific coast	115
Number at training station, San Francisco	101
	1,818
Number serving on cruising vessels general service	4,355
Total in service June 30, 1903	6,173
Total in service June 30, 1902	4,322
Increase for year ending June 30, 1903	1,851

About 61 per cent of the landsmen for training have advanced beyond that rating, as follows:

To petty officer ratings	568
To seamen	610
To ordinary seamen	1,913
To firemen, first class	35

To firemen, second class	126
To coal passers	248
To other ratings	257
Total advanced	3,757
Apprentices:	
Number at training station, Narragansett Bay, R. I., June 30, 1903	750
Number at training station, San Francisco, Cal., June 30, 1903	203
Total at training stations June 30, 1903	953
Number serving in Atlantic Training Squadron June 30, 1903	445
Number in training ships, Pacific coast, June 30, 1903	298
Total under training June 30, 1903	1,696
Number serving on cruising vessels, general service, June 30, 1903	3,112
Total number in service June 30, 1903	4,808

Classes under instruction.

Seamen, gunner class	31
Petty officers' class (new class now assembling)	1
Class in electricity	68
Machinist class	24
Artificer class	53
Yeomen	47
Total	224

DEATHS, RETIREMENTS, AND RESIGNATIONS.

During the fiscal year 12 deaths have occurred among officers on the active list and 29 on the retired list, a total of 41. During the same period there have been 55 retirements and 40 resignations (inclusive of 20 naval cadets), 2 dismissals from the service, and 3 appointments have been revoked.

Twenty-eight appointments have been made in the grade of assistant surgeon and 18 in the grade of assistant paymaster. Other appointments have been 4 chaplains, 7 civil engineers, and 3 assistant civil engineers.

The commissions issued during the past fiscal year number upward of 700, and about 72 warrants have been issued to former acting warrant officers, whose fulfillment of certain requirements of the service entitled them to permanent appointments.

One warrant officer took advantage of the act of March 3, 1901, providing for the promotion of warrant officers to the grade of ensign, and upon successfully meeting the examination requirements was given a commission as ensign in the Navy.

During the fiscal year ending June 30, 1903, there were received 75 applications for service pensions. Nine claims were pending July 1, 1902, and four were pending July 1, 1903. Sixty-nine claims were allowed and 11 rejected.

The following is a recapitulation:

Claims pending July 1, 1902	9
Applications received during fiscal year 1902–3	75
Total claims	84
Claims allowed during fiscal year 1902–3	69
Claims rejected	11
Claims pending July 1, 1903	4
Total	84

ESTABLISHMENTS UNDER THE BUREAU.

OFFICE OF NAVAL INTELLIGENCE.

Capt. C. D. Sigsbee remained Chief Intelligence Officer until May 1, 1903, on which date he was relieved by Commander Seaton Schroeder.

It has been found necessary to discontinue the publication of the General Information Series in order that the staff of the office might occupy the time in work of a more important nature.

The Office of Naval Intelligence is suffering from shortage of officers, but, under the present condition of the personnel of the Navy, the demands of the fleet make it impossible to complete the staff of officers which have to do with shore work.

NAVAL ACADEMY.

Commander Richard Wainwright remained Superintendent of the Naval Academy until November 1, 1902, and his successor, Capt. Willard H. Brownson, assumed command November 6, 1902.

Owing to the increase of appointments of midshipmen as provided for by the law passed during the last session of Congress, the fourth class now consists of over 300 members. All of these midshipmen have been at the Naval Academy during the past summer, and the advantage of the system which made it imperative that a full class should be entered before the end of June, and not a portion of the class in the fall, has been thoroughly demonstrated. This new class has had the advantage of an entire summer of drill and instruction, and will be equipped to commence their first term of study and instruction at the Academy with all the members of the class on an equal footing. It is believed that this preliminary summer training has been beneficial.

Owing to the large number of midshipmen to be berthed on board the practice ships, the Department has found it necessary to utilize some of the vessels of the Coast Squadron for the practice cruise of the midshipmen. In accordance with this policy 112 midshipmen were assigned to the *Indiana*, 100 to the *Hartford*, 112 to the *Chesapeake*, and 4 to each of the three torpedo-boat destroyers; and from time to time the assignment of midshipmen is changed from ship to ship, in order that they may acquire and receive instruction on board vessels of different type. It is believed that this policy of assigning the Coast Squadron for duty during the summer months as the practice squadron for midshipmen will result in a more thorough training in such matters as relate to modern men of war than has been possible in the past.

Under the able administration of the present Superintendent, Capt. Willard H. Brownson, U. S. Navy, the practice of hazing has been discouraged, and it is believed the wise methods adopted by him will soon entirely eradicate it.

The Bureau reiterates its recommendation of last year, that on graduation at the end of the academic course graduates be at once commissioned as ensigns.

NAVAL HOME.

Rear-Admiral C. E. Clark, U. S. Navy, remained governor of the Naval Home at Philadelphia, Pa., during the fiscal year. His report, which is appended, is approved.

NAVAL WAR COLLEGE.

Capt. F. E. Chadwick, U. S. Navy, remained president of the Naval War College at Newport, R. I., during the fiscal year. Under his able management the work of the college has continued to markedly benefit the officers who have attended the course. It is a school of war where subjects which would usually be brought to the attention of officers only during a state of war are considered, and problems solved by methods which represent as nearly as possible war conditions. Much valuable work is done by the staff of the war college for the Navy Department in addition to the work in connection with the course of instruction. The value of this institution to the naval service becomes each year more apparent.

NAVAL TRAINING STATION, NARRAGANSETT BAY.

Capt. J. J. Hunker remained commandant of the training station until September 3, 1902, on which date he was relieved by Capt. W. W. Mead.

Since the last annual report a number of improvements have been made in and about the new barracks. The concrete flooring of the drill hall was overlaid with a flooring of maple; five star ventilators have been placed on the roof over the drill hall and head, but an entire ventilating system for the building will be installed as soon as possible. The new assembly, lecture, and reading room, for which an appropriation became available in 1903, has been built up to the second story and a temporary roof put on, it having been found impossible to get a bid within the appropriation for the completion of the building. One hundred and eight feet of breakwater on the west side of the island has been completed, leaving a gap of 94 linear feet yet to be closed. The concrete pavement on the west side of the new barracks has been laid, and the contractor is now completing that at the south end, in all some 3,200 square yards. Plans and specifications are now in course of preparation for the erection of a new barracks, the money for which was appropriated in the last appropriation bill. During the past year the health conditions at the station have not been altogether satisfactory. From November until late in May there were many cases of pneumonia of a mild type, only five deaths, however, resulting from this epidemic. In May an epidemic of diphtheria broke out, but no deaths resulted. In fact, out of some 220 cases only 15 were sufficiently ill to be in bed. As soon as the disease was pronounced to be diphtheria the apprentices were transferred from the barracks and put under canvas, and measures were taken at once to stamp out the disease, with the result that conditions have steadily improved and the station is now free from all dangerous infection.

NAVAL TRAINING STATION, SAN FRANCISCO, CAL.

Rear-Admiral Henry Glass remained commandant of the training station until February 4, 1903, on which date he was relieved by Capt. B. H. McCalla.

The detailed report relating to affairs at this station will be found in the report of the commandant marked "E." As recommended in the last annual report, a properly equipped hospital is a necessity at the station, owing to the large number of cases of contagious diseases of a mild type among the apprentices. During the past year it became

necessary to quarter the recruits from the station at the quarantine station, San Francisco, while the barracks were being fumigated and placed in a sanitary condition. The accommodations at this station are, as previously stated, inadequate, and unless the War Department vacate that portion of the island now occupied for the storage of torpedo cables, gear, etc., there is no room for expansion. Owing to the limited size of Yerba Buena Island the Bureau has been considering the selection of another site for the training station which will accommodate a larger number of recruits.

NAVAL DISTRICTS.

The work indicated for the naval districts in last year's report has been further developed and the entire coast of the United States divided into naval districts.

The work on the coast is thus systematized by dividing it among several officers of experience, who act, in addition to other duty, as commandants of naval districts. Under them a proper system is rapidly developing. The Navy Department need only supervise and arrange that the different districts work together in a uniform manner.

The commandant of the first naval district is the commandant of the navy-yard, Portsmouth, N. H.; the commandant of the second and third naval districts is president of the Naval War College; the commandant of the fourth naval district is the commandant of the navy-yard, League Island, Pa.; the commandant of the fifth naval district is the commandant of the navy-yard, Norfolk, Va.; the commandant of the sixth naval district is commandant of the navy-yard, Charleston, S. C.; the commandant of the seventh naval district is the commandant of the naval station, Key West, Fla.; the commandant of the eighth naval district is the commandant of the navy-yard, Pensacola, Fla.; the ninth, tenth, and eleventh, not yet organized, will be under the commandant Lake training station, should this station be established; the twelfth and thirteenth naval districts, now known as the Pacific naval district, are under Rear-Admiral Merrill Miller, but it is intended later on to put the twelfth naval district under the commandant of the Yerba Buena training station and the thirteenth naval district under the commandant navy-yard, Puget Sound.

This development of the naval districts has proved successful. The Light-House Service, the Life-Saving Service, the Signal Service, and all other branches of the Government which would cooperate in establishing and maintaining lines of comunication and signal stations have indicated a willingness to take part.

NAVAL INSTITUTE.

The Bureau desires to again express its thanks to the Naval Institute for its discussion of professional subjects, and to state that its publications, which have been of great value to the naval service, are much appreciated.

PERSONNEL.

The personnel bill, which amalgamated the line and Engineer Corps of the Navy, has been in operation for four years.

After carefully observing the practical working of the consolidation of the Engineer Corps with the line of the Navy, the Bureau consid-

ers that the time has come when some special points should receive the consideration of the Department.

First. The need of more officers as engineers of our ships at the present time.

Second. The need of a still greater number of officers for the future demand of our engine rooms as our fleet increases in size. This need will, it is hoped, be supplied when we have more officers in the Navy, but measures should be taken to insure this, and a system should be arranged by which the intentions of the personnel bill in this respect would be fully carried out.

Third. There should be further consideration of the question whether, at any period of the officer's service, there should be a final separation between the duties of the engineer and the deck officer.

Fourth. The proper relation of the experimental engineering laboratory lately provided for by Congress to the instruction of officers in the higher branches of engineering, the general administration of this laboratory, its corps of instructors, and its course of studies and experiments.

This important subject is now being considered by a board, whose report when completed will be submitted.

Enlisted force.—The Bureau recommends that section 17 of the act approved March 3, 1899, be amended in such a manner as to include service in the United States Army and Marine Corps in computing length of service required for retirement. The equity of such an amendment was brought to the attention of the Bureau in the case of Cornelius Moran, who has twenty-three years five months and twenty-three days of naval service to his credit, but is not entitled to retirement, notwithstanding he has nine years three months and sixteen days service in the Army and Marine Corps, or an aggregate service of thirty-two years seven months and nine days. The statute regarding retirement in the Army provides for the computation of service in the United States Marine Corps in determining length of service for retirement.

The Bureau also recommends that in the act making appropriations for the naval service for the fiscal year ending June 30, 1905, and under "Transportation, recruiting, and contingent," the Bureau of Navigation, provision be made for the item of expenses of lodging and subsistence for enlisted men employed on recruiting duty who can not be lodged or subsisted on board of a United States naval vessel or at a naval station; such provision to state that the lodging and subsistence is to be furnished under such regulations as may from time to time be prescribed by the Secretary of the Navy. The Bureau is of opinion that $9 per month, as prescribed by paragraph 5, article 1243, United States Navy Regulations, is not adequate to the expenses of suitable lodging and subsistence for enlisted men on detached service, and that such expenses should be provided for by the Government.

Officers.—The Bureau brings to the attention of the Department a defect which is common to most military services, whether at sea or on land, namely, the advanced age at which officers reach the more important commands. Upon the officers who are to command our battle ships will largely depend in the future the success or failure of the Navy and the country in great crises. The duty of commanding a battle ship and fleets of battle ships is one which requires, together with large experience and ability, the energy and nervous endurance which is

found, as a rule, among men much younger than those who will command our battle ships and fleets for some years to come. The ages of officers now commanding our battle ships is as follows: Fifty-nine, 59, 58, 57, 57, 57, 56, 56, 56, 55, 55, and this will be about the ages of officers who will relieve them. The ages of officers now selected to relieve four of these are as follows: Fifty-seven, 57, 57, 55.

The conduct of captains in command of their ships is most satisfactory to the Department, and in the late war with Spain no fault was found on account of any lack of endurance, but it is reasonable to look forward in the future to periods of greater strains, in peace as well as in war, than the Navy has yet known, and we should so arrange our methods as to secure a personnel physically as well as mentally fitted to endure any stress which the exigences of the service may exact.

The Bureau knows of only one remedy for this defect. It is the retirement of officers when they have reached a certain age in a certain grade. The Bureau submits no detailed plan, believing that this matter is one that should receive consideration from the Navy Department and from Congress before any steps are taken. The process is simple and need be applied to not more than two grades. It may be briefly described as follows: An officer of 50 years of age who has not attained the rank of captain will retire, and a captain who at 55 has not reached the grade of rear-admiral will retire. It should be stated that this method is in some other services accompanied by the selection to a limited extent of officers for promotion in grades below that of captain.

The Bureau is not prepared to say that this plan would find favor with a majority of the officers in the Navy, but it regards some action in this direction to be essential to naval success in the future and bases its views upon the evidence which naval history presents to us in regard to the age of officers commanding vessels of the line of battle.

Increase of officers in the Navy for future needs.—An act passed at the second session of the Fifty-seventh Congress provides that the list of lieutenant-commanders "shall be so increased that there shall be 30 additional lieutenant-commanders; in all, 200; 50 additional lieutenants; in all, 350." The same act provides that "the increase in the grades of lieutenant-commander and lieutenant provided for in this act shall be filled by promotion each year of not exceeding 25 per cent of the total number of the increase in each of said grades." It is earnestly recommended that the total increase of 30 lieutenant-commanders and 50 lieutenants, as provided for in the afore-mentioned act, be made at once.

At the present time lieutenants are doing the duty which should be done by lieutenant-commanders, thus taking away from the number of lieutenants which should be assigned for duties pertaining to that grade.

Promotion of warrant officers to commissioned ranks.—The law providing for the promotion to commissioned rank of warrant officers originally permitted 6 per year to be advanced. This was changed at the last session of Congress to allow 12 to enter the commissioned ranks. The number permitted has not been realized, only 14 in all having applied for the examination, 5 of whom were ineligible on account of age or other disabilities, and 4 succeeded in passing. The Bureau believes that six years is too long a time for warrant officers to be required to serve as such before becoming eligible for examination for the rank of ensign. It is recommended that additional

legislation be now requested which shall reduce this period to two years. The Bureau favors any change which will encourage the younger warrant officers in entering the commissioned ranks, and especially so since the qualities of the young men who have entered the enlisted force of the Navy have distinctly improved. The extension of the fields of recruiting into the country districts and throughout the Central West has drawn upon a body of young men, of whom a good proportion have qualities of mind and character well fitting them to become commissioned officers of the Navy. This being assured, the Bureau is confident that the introduction of men from the ranks into the commissioned officers' list is, when restricted to a moderate number per year, a good feature.

A young man possessing fair ability who enters as a landsman at 18 years of age may easily become a seaman at 20, a petty officer at 21, a chief petty officer possibly at 23, and a warrant officer at 25. If the law be so modified as to reduce the time in the warrant officer's position to two years before the examination for ensign, he will reach that position at 27, when he will not be much older than the average age of ensigns who have attained that grade through the course at the Naval Academy. The Bureau believes that such a system will be beneficial alike to the body of commissioned officers and to the warrant officers and enlisted force of the Navy.

Warrant machinists needed.—At present there are allowed by law 150 warrant machinists. Fifty more are needed to meet the immediate demands of the service. Of the 150 there are but 13 now on shore in the United States; and of these 13, 4 are sick in hospitals or on sick leave, leaving but 9 on shore duty. Of these 9, 8 have returned from a three years' cruise since September, 1903.

Disinterment and transportation to their homes of the remains of officers and men who die or are killed within the continental limits of the United States.—There is no provision of law or appropriation which will permit the disinterment and transportation to their homes of the remains of officers and men who die or are killed within the continental limits of the United States.

After consideration of the subject there appears to be no sufficient reason why a distinction should be made between the officers and men who die or are killed while serving outside of the continental limits of the United States and those who are serving within said limits. Each class of service is controlled by the Department, and in justice and equity the officers and men serving in either class should be treated alike in this particular. It is therefore recommended that the act approved July 1, 1902, be amended so as to include officers and men who die or are killed within the continental limits of the United States from and after the passage of the amendment.

Vice-admirals.—The policy of concentrating our principal naval force in two great detachments, one in the Asiatic Station and one in the North Atlantic Station, creates in those two localities positions of unusual responsibility, each station having three squadrons, one of battle ships and two of smaller vessels. Each squadron is commanded by a rear-admiral, and the commander in chief of the whole force should have the rank of vice-admiral, not alone because of the number of ships and men under him but also because of the responsibilities with which he is charged as the representative afloat of his Government. The Bureau therefore recommends that the commanders in

chief of the Asiatic Fleet and the North Atlantic Fleet be made vice-admirals during the term of their commands.

An additional assistant to Bureau needed.—To enable the Bureau of Navigation to meet the increasing responsibilities being placed upon it, an additional assistant to the Bureau is required, having the same position as to official signature and authority as is now held by the present assistant.

The Chief of Bureau should have more time to devote to the general subjects of strategy, tactics, and war preparations which are assigned to him from time to time by the Secretary of the Navy, and to questions coming before the general board and its executive committee, of which the Chief of Bureau of Navigation is chairman.

National naval reserve.—The subject of a national naval reserve has been under consideration by the general board as well as by the Bureau of Navigation, and it is the intention of the Bureau to take up this subject more actively in the near future.

Naval bases in the Philippines and Caribbean.—Having pointed out in this report the general needs of the fleet, the Bureau desires to call the Department's attention to the fact that considerations, not alone of strategy, but of economy and general efficiency combined, indicate the necessity of a fortified naval base and dockyard in the Philippine Islands. We are now entirely dependent upon the courtesy of foreign nations for docking facilities and for all important repairs to hull or engines. In case of hostilities the privilege of using these foreign dockyards would be withdrawn and the consequent decreasing efficiency of its ships might prove a serious disadvantage to this Government. The Bureau therefore repeats its recommendation of last year, and adds that the need for such a station becomes more apparent as time goes on. The Bureau believes the efficiency of the Asiatic Fleet will be in the future dependent upon the existence of a dockyard and station owned by the United States and located preferably at Olongapo.

The acquisition of Guantanamo, Cuba, as a naval base is an accomplished fact. Its proximity to the Windward Passage and its relations to the isthmian canal show the importance of its immediate development and defense. The same is true but to a less degree for Culebra, P. R.

PROPOSED GENERAL STAFF.

In my last annual report this subject was touched upon. As the fleet develops, its preparation for war requires closer attention and a better system of administration. The present organization of the Department is inadequate, because it fails to coordinate the efforts of the several bureaus to a common end, and nowhere fixes responsibility, under the Secretary, for the general efficiency of the fleet and its preparedness for war. The necessity continues for some authoritative direction, under the Secretary of the Navy, of the general affairs of the fleet as a military organization.

The Bureau of Navigation, in conjunction with the general board, has vicariously performed some of the duties of a general staff, but lacks authority to perform the most important of them. The principal functions of the general board are to coordinate the work of the Naval War College and the Office of Naval Intelligence, to make detailed plans of campaign, and to advise the Secretary when required

upon the general needs of the Navy. The experience of the last four years has proved its usefulness. Under the distinguished presidency of the Admiral of the Navy, its advice has guided the Bureau of Navigation; and the Bureau, so far as its authority extended, has supplemented by its executive action the advisory function of the general board. It is clear that a general staff, by whatever name it may be called, should include as one of its elements the Bureau that controls, under the Secretary, the personnel and the distribution of the fleet.

None of the existing bureaus or boards of officers of the Department, nor any combination of them, nor any new body organized by the Secretary's order, without the direct sanction of Congress, can perform comprehensively and effectively all the duties of a general staff; for by law the "business of the Department is distributed" among eight independent bureaus, and no official body can be held responsible to the Secretary of the Navy for the general efficiency of the fleet and its preparedness for war, unless it has authority under the Secretary to indicate to the several bureaus the needs of the fleet as a military organization. No redistribution of the business of the Department, under the present statute, can establish a new coordinating bureau, nor give any existing bureau the right to modify in the slightest degree the independent action of any other.

The function of the general staff would be, when directed by the Secretary, to indicate to the bureaus of personnel and material the needs of the fleet in commission, to recommend to the Secretary the reenforcements of men and the supplies of coal, ammunition, provisions, and stores of every kind required, and where and when they should be delivered. The functions of the several bureaus should be to furnish the men, coal, ammunition, provisions, supplies, and stores indicated by the general staff. The distinction is broad and fundamental. When once clearly stated it is obvious that the general coordinating power is a necessity to the responsibility for the readiness of the fleet. A general staff would not encroach upon the proper responsibilities or authority of any of the bureaus of the Department nor interfere with their internal operations, but by applying a directing force heretofore lacking would serve as a better instrument to the Secretary of the Navy for administering the fleet as a whole.

Another important function of the general staff would be to judge, when directed by the Secretary, of the need for new naval stations, dockyards, and coal depots, recommend to him their location and defense, as well as the numbers and types of ships necessary to carry out the plans of war and perform the service of the fleet in peace. Into the details of construction, armament, engineering, and equipment the general staff would not enter; but to recommend the tactical qualities of ships is logically the duty of that body of sea officers, trained to navigate and maneuver squadrons, and responsible for making plans of war and for readiness of the fleet to carry them out.

Strongly convinced of the necessity of such a body in order to attain the highest efficiency, the Bureau of Navigation respectfully requests that the subject may receive the attention of the Secretary, and, if he sanction these views, that Congress may be asked to give the matter its consideration.

Very respectfully,

H. C. TAYLOR,
Chief of Bureau.

The SECRETARY OF THE NAVY.

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REPORT OF THE CHIEF OF THE BUREAU OF ORDNANCE.

DEPARTMENT OF THE NAVY,
BUREAU OF ORDNANCE,
Washington, D. C., October 1, 1903.

SIR: I have the honer to submit the annual report of this Bureau, and also to transmit herewith estimates for the fiscal year ending June 30, 1905.

ESTIMATES.

Salaries, Bureau	$28,326.64
Fuel, tools, material, and labor, maintenance of proving ground, and smokeless powder factory; for target practice; reserve supply of ammunition; purchase and manufacture of smokeless powder; purchase and installation of machine tools at the navy-yards, Boston and Porstmouth, at the torpedo station and the naval magazine Lake Denmark, N. J.; fifteen days' leave of absence to employees, and for machinery, forges, cranes, and other outfits at the Naval Gun Factory; traveling cranes for building No. 111, at navy-yard, Mare Island, Cal	3,249,700.00
Reserve guns for auxiliary cruisers	125,000.00
Reserve guns for ships of the Navy	125,000.00
General expenses of the torpedo station	65,000.00
Naval Militia	60,000.00
General repairs to buildings, magazines, machinery, etc	30,000.00
Miscellaneous, transportation, freight, etc	75,000.00
Civil establishment at navy-yards and stations	47,006.75
Public works, Bureau of Ordnance:	
Addition to chemical laboratory and seamen's quarters, coal shed and storehouse for torpedo-boat supplies at the torpedo station	34,100.00
Improvements to water system, filling house, and lenghthening railroad switch at naval magazine, Lake Denmark, N. J	10,000.00
New magazine, with lightning protection and track connections at naval magazine, Fort Mifflin, Pa	20,000.00
Concreting range battery, improvements to wharves and slips, sulphuric acid plant, coal storage and handling facilities, additional powder magazines, and extension of boiler plant at naval proving ground, Indian Head	121,500.00
One new magazine, with lightning protection, track connections, etc., and extension of gun-cotton magazine, at St. Juliens Creek, near Norfolk, Va	11,100.00
Observation magazine for suspected powders, and one filling house at magazine, Mare Island, Cal	2,200.00
Powder magazines, filling houses, etc., Philippine Islands	50,000.00
Increase of the Navy, "Armor and armament"	12,000,000.00
Total	16,053,933.39

During the past year the Bureau has chiefly been engaged in preparing the armament and ordnance outfits of vessels under construction; in maintaining vessels in commission, and in overhauling, refitting, and improving the ordnance fittings of vessels in ordinary; and in making improvements to magazines, navy-yards, and stations, for which appropriations have been made. Since the date of the Bureau's last annual report the armament and ordnance outfit has been completed for battleships *Maine*, *Missouri*, and *Ohio;* monitors *Arkansas*, *Florida*, *Nevada*, and *Wyoming*, and practically so for the 3,000-ton cruisers *Chattanooga*, *Cleveland*, *Denver*, *Des Moines*, *Galveston*, and *Tacoma*.

The armament of the three battle ships and four harbor-defense monitors above referred to has been installed on the respective vessels; all the monitors and the *Maine* have had their gun trials, in which the guns and mounts were shown to be satisfactory. Some weakness developed in the turrets of some of these vessels, and also in some of the 6-inch gun emplacements of the *Maine*, due to the very great energy of their new high-power guns. These matters have been or are being rectified, and no further difficulty is anticipated in this respect.

The armament of several of the six cruisers above referred to has been shipped to the respective building yards, and has been or is being installed in a number of them.

The guns and mounts for the six armored cruisers of the *Pennsylvania* class are well in hand, and also those for the five battleships of the *Virginia* class, though much remains to be accomplished before they are completed. The Bureau expects, however, to have the complete ordnance outfits for these vessels ready by the time they are required.

The gun forgings and the forgings and steel castings for the gun mounts of the three 9,700-ton cruisers of the *St. Louis* class have been ordered, and there will probably be no delay with the armament of these vessels.

Forgings for type guns for armored cruisers *Tennessee* and *Washington*, and for the five 16,000-ton battleships of the *Louisiana* class, have been ordered, but no work has as yet been done for these vessels, nor for the two 13,000-ton battleships of the *Idaho* class. All the main battery guns of the seven battleships and two armored cruisers last authorized will be of nickel steel and double tubed or reenforced to the muzzle.

The Naval Gun Factory has been running on full time throughout the year, two and often three shifts of men being employed, the average number of men being 2,440.

One hundred and fifty new guns have been completed at the Naval Gun Factory during the past year, namely: One 13-inch, twelve 12-inch, two 8-inch, fifty 6-inch, three 5-inch, twenty-six 4-inch, twenty 6-pounders, and thirty-six 3-inch landing guns. There are 681 guns in process of manufacture at this establishment, namely: Eleven 12-inch, twenty-one 8-inch, fifty-nine 6-inch, sixty 3-inch (14-pounders), thirty 6-pounders, one hundred and fifty 3-pounders, and three hundred and fifty 1-pounders.

Forgings to a considerable number, on which no work has yet been done, have also been received.

Eleven 6-inch breech-loading rifles have been converted into rapid-firing guns.

A new battery of twelve 6-inch 40-caliber rapid-fire guns and mounts for the *Baltimore* has been procured by contract from the Bethlehem Steel Company, and a similar outfit has been ordered from the same company for the *Newark*.

Improved mounts have been supplied for the 6-inch guns of the *Newark*, *Massachusetts*, *Indiana*, *Illinois*, *Atlanta*, and *Texas*, and sets are now being prepared for the *Alabama* and *Yorktown*. These mounts have been fitted with a new type of frictionless trunnion bearings and with training gear on the right-hand side, in order that the principle of continuous aiming may be employed. The total number of mounts manufactured at the Naval Gun Factory during the year is

365, and 386 are in process of manufacture. A great amount of miscellaneous work has been performed at the Naval Gun Factory, such as the manufacture of new sight mountings for a large number of guns now in service, firing locks, powder tanks, gun implements, turret fittings, fuses, etc.

The most pressing matter before the Bureau at the present time, and one which is a subject of much concern, is the question of completing the armaments for vessels now under construction by the time they will be required. The facilities of the Naval Gun Factory as they exist to-day are entirely inadequate for the purpose, and, so far as the Bureau is aware, there are but few private establishments in this country which are in condition to undertake work of the class required.

The principal tools at the Naval Gun Factory have been in almost constant operation both day and night during the past year, and two, and often three, shifts of men have been employed on all the most important work. Notwithstanding this fact, no work has yet been begun on the batteries of twelve important vessels, all but two of which are now in process of construction, the contracts for several of them having been let for several months; the vessels ranging from 2 to 46 per cent toward completion. It requires as much time to manufacture the armament of a battleship as to build the ship herself, and, therefore, work on the armament should be commenced when the ship is begun. Unfortunately existing conditions at the Naval Gun Factory have not permitted such a course to be followed for a number of years past.

In order to relieve the situation, the Bureau recently executed contracts with private establishments for the manufacture of twenty-four 8-inch and thirty-six 7-inch guns and mounts for vessels whose date of completion is the most remote. These contracts aggregated nearly $2,000,000, and in order to place them the Bureau was obliged to pay 36 per cent, amounting to half a million dollars more than the work could be performed for at the Naval Gun Factory. It remains to be seen whether these guns and mounts will be completed within the prescribed time, but judging from its past experience with contract work the Bureau fears that they will not be.

It may be assumed that no private manufacturer will incur the heavy expense necessary to install a plant for making large and medium caliber guns unless he can recover the amount invested within a moderate period of time, so that if the Government goes outside of its own shops to procure the armament for its new ships it must be prepared to pay the cost of such plant as is necessary for its production.

The Bureau is of the opinion that under such circumstances it would be to the interest of the Government to invest a considerable portion of the money required for plant in its own shops, which it would then own and control, rather than to pay it all to private parties. The manufacture of ordnance is a special industry, requiring a very complete and expensive plant which is not useful for other purposes.

It also requires a thorough knowledge of the subject and a good organization. These latter the Government has at its own gun factory, and, therefore, it would seem to be easier, cheaper, and quicker to expand it to a reasonable extent rather than to encourage the building up of too many new plants which the Government would have to pay for, with no certainty of having continuous work for them in the future.

Moreover, when the Government gives out a number of guns and mounts to be made by contract, it loses control of the situation so far as their completion is concerned. Private establishments can not give exclusive preference to Government work, whereas at the Government shops, if the armament of any particular vessel is behind, the whole resources of the establishment can be turned upon it. Again, business reverses may overtake the best and soundest private establishment through no fault of its own, especially in this day of mergers and trusts, and they are more liable to suffer from strikes than are Government establishments.

The Bureau is not averse to giving out a portion of its work to private parties, but believes that the major portion of it should be done by the Government in its own shops, in order that it may exercise full control and supervision of the work and because it can do it in a more satisfactory manner than anyone else, and, above all, because it is deemed advisable for the Government to be in a position to control, to a great extent, the manufacture of its naval ordnance.

Owing to the congested condition of the gun shops at the Washington Navy-Yard and of their inadequacy in their present state to perform the work required within proper limits of time, the Bureau in April last brought the matter to the attention of the Department, recommending that a board of officers, not connected with the gun factory, should be ordered to fully investigate and report on the subject, with recommendations as to what enlargement, if any, should be made to the plant. Acting upon this recommendation the Department immediately ordered a board of carefully selected officers who went into the matter with great thoroughness, reporting to the Department on June 19 last the result of its investigation.

This report showed that, leaving out unfinished work for vessels nearly completed, the armament was required for 25 vessels, namely, 12 battle ships, 8 armored cruisers, 3 protected cruisers, and 2 gunboats. These vessels require for their main batteries forty-eight 12-inch, eight 10-inch, one hundred and twenty 8-inch, eighty 7-inch, two hundred and eighteen 6-inch, twelve 4-inch, and four hundred and thirty-two 3-inch guns, a total of 918 guns, besides several hundred minor caliber guns for secondary batteries.

After a careful review of the situation the board recommends such additions to the Naval Gun Factory as in its opinion are necessary to enable it to keep pace with the probable requirements of the Navy in time of peace, specifying the number and kind of new shops and other improvements required for such purpose, with estimates of their cost.

The Bureau has carefully considered the report and recommendations of the Gun Factory Board, which recommends an expenditure of $4,182,433 for the expansion of the plant, and other necessary improvements to water front, railroad service, drainage, grading, paving, etc., to the extent of $303,603, and is of the opinion that it would not be advisable at this time to undertake so extensive a programme, because the unusual and extraordinary conditions now existing at the gun factory may not occur again, and because it is more than doubtful whether such an increase to the plant as is recommended could be made in sufficient time to afford relief. Nor is it certain that the improvements recommended by the board, even if made as soon as practicable, would be sufficient to meet the requirements of the present situation. The Bureau, therefore, is of the opinion that the judicious course to

pursue under the circumstances is to seek such aid as can be afforded by the United States Army Gun Factory at Watervliet and to contract with private parties to such an extent as can be done with prudence, having due regard to the certainty of the completion of the work within the required time; getting as much work as practicable out of the Naval Gun Factory by making such additions and improvements as are absolutely necessary at this time to enable it to maintain its maximum degree of efficiency and as are most urgently required.

While some relief can be had from the Army as regards the manufacture of guns (it having offered to manufacture twenty-four 8-inch and twenty-four 7-inch guns), none can be had as regards mounts, but as the making of gun mounts is not a special industry to the same extent that the manufacture of guns is, any large and well-equipped machine shop can, under proper supervision as to inspection, etc., be trusted to manufacture them; consequently the Bureau believes that with the aid of the Army Gun Factory and by contracts with private parties, the situation can be met, provided some important improvements are made as soon as practical to the Naval Gun Factory.

The most important of these improvements is the completion and equipment of the new power plant, this being indispensable. The other improvements in the order of greatest necessity and which are now recommended are as follows:

1. Complete new boiler house and steam plant.
2. Complete coal-storage and coal-handling plant.
3. Erect and equip building for electric-power plant.
4. Erect and equip a new gun shop for medium-caliber guns.
5. Erect and equip a new brass, iron, and steel foundry.

A new general storehouse is urgently needed at the Washington Navy-Yard. Should such a building be authorized, it would become necessary to pull down the present locomotive house (which is too small) and build a new one elsewhere.

The improvements above recommended are believed to be sufficient for the present and as many as can well be undertaken at one time. Others will be necessary hereafter, but can be considered at a subsequent period.

POWDER.

Black powder for ignition and saluting purposes and for filling shell is still used, but its manufacture for other purposes has been wholly discontinued.

Practically all brown powder has been withdrawn from the allowance of ships, and what little remains in service afloat will soon be replaced with smokeless powder.

The manufacture of smokeless powder during the past year has proceeded at a fair rate, about 900,000 pounds more having been delivered than during the preceding year.

The difficulties at first experienced by some of the manufactures of smokeless powder in reaching the high standard of purification of their nitrocellulose to meet the Bureau's requirements have been overcome to a great extent, and it is expected that during the coming year much larger deliveries will be made by all the powder manufacturers, thus enabling the Bureau to add a greater quantity to its store in reserve as well as to supply the deficiency due to current expenditures, and to provide powder for new ships.

The Bureau has especially directed its attention to the use of uniform standards of manufacture for all powder made for the Navy, and to secure not only a well-made and stable product, but one which, when packed and stored or put up in charges and issued to service, will preserve its ballistic qualities unchanged. A standard condition of volatile contents has been established, uniform methods of exposure to the atmosphere after drying, packing each lot in air-tight cases, and the firing of ballistic samples in the exact condition of the whole lot as packed, and at a temperature corresponding to the average temperature to be expected in the magazines of ships have all been steps taken to standardize the velocity and pressure for each caliber of gun and each index of smokeless powder, and the powder manufacturers have been directed to increase the size of lots so as to reduce the number of indices. In addition, the Bureau has, during the past year, had returned to the several manufacturers, to be redried, over one million pounds of smokeless powder. This has been redried, reblended, and packed in new air-tight packing boxes. It has also been re-proved and new weights of charge assigned.

With few exceptions it may be said that powder of earlier manufacture has become quickened through loss of volatiles, and while in several instances increased pressures have resulted, none that would endanger the guns has been reported.

The stability of powder of recent manufacture is of the highest order and need cause no concern in the future. Some one or two indices which were among the first lots manufactured have given evidences of local decomposition, but although in one case at least this decomposition had progressed to an advanced stage, not the slightest danger was caused to the powder stored in the same magazine, the heat of decomposition being so gradually developed that it had no appreciable effect on the temperature of the magazines. During the last spring some five indices of smokeless powder on board the *Olympia* fell under suspicion, and after an examination by a board of officers attached to the vessel, the entire quantity of powder was condemned and thrown overboard. A board of officers and a skilled chemist which later investigated the occurrence reported that there was nothing to show that the powder was unstable, and from an examination of the few samples remaining of the suspected indices there was every reason to presume that the powder destroyed was in a perfectly stable condition. Parts of the same indices of powder in service on other ships have given no cause for suspicion.

This occurrence caused the Bureau to modify its instructions concerning tests of smokeless powder on shipboard and under the new regulations it is not likely that such a thing will occur again.

The price of smokeless powder remains unchanged, namely, 70 cents a pound, the Government supplying the alcohol used in the manufacture, there being no competition.

On April 16, 1903, the Bureau invited the manufacturers of smokeless powder in the United States to compete with one another in bidding for 1,000,000 pounds of powder, hoping that so large a quantity would be a sufficient inducement to secure competition. When the bids were opened on May 21, 1903, it was found that all were alike, namely, 70 cents per pound. No awards were made in consequence.

ARMOR.

The manufacture of armor during the past year has progressed in a satisfactory manner, showing a marked increase in the rate of delivery over any previous year. The armor manufacturers have, in accordance with the promise noted in the Bureau's report for last year, greatly increased their facilities, deliveries amounting to 11,493 tons having been made during the year, with promise of still larger deliveries during the coming year, improvements now under way at one of the armor plants not being as yet completed.

In February of this year contract was entered into with the Carnegie Steel Company, of Pittsburg, Pa., and the Bethlehem Steel Company, of South Bethlehem, Pa., for 11,464 tons of armor, with appurtenances, for the battle ship *Connecticut* and class, and for the armored cruiser *Tennessee* and class. The ballistic plate representing the first group of armor under this contract is now at Indian Head proving ground awaiting ballistic test; a second group will be ready for test within the next two months.

Advertisement has been made and proposals submitted for furnishing 16,809 tons of armor plate and appurtenances for the five battle ships authorized by the last Congress; award for this armor was made on October 26, 1903, to the Carnegie Steel Company, the Bethlehem Steel Company, and the Midvale Steel Company, each receiving about one-third.

Until December of last year all ballistic tests had been made with uncapped projectiles; the introduction of capped armor-piercing projectiles for use by foreign navies led the Bureau to the conclusion that such projectiles should be used in the ballistic test of armor plate, and agreement was then made with the armor contractors whereby all the armor remaining to be delivered under their contracts of 1900 should be so tested; the contract of February, 1903, also contains this provision.

The use of these projectiles has modified somewhat the character of the armor plate manufactured, as is shown by the fact that the first few plates tested under the modified specifications showed markedly less resistance to penetration than those more recently tested.

The following table shows the amount of armor required for each vessel now building, the amount delivered and to be delivered, the date and amount of the first delivery of armor, the time intervening between the date of contract of the vessel and the first delivery of armor, contract date of completion of the vessels, and per cent of completion of the vessels on October 1, 1903.

A subsequent table shows all armor contracts to date.

Name of vessel.	Class.	Date of contract for hull and machinery.	Contract date of completion.	Degree of completion Oct. 1, 1903.	Date of first delivery of armor.	Quantity of first delivery of armor.	Number of months after date of contract to first delivery of armor.	Total armor required.	Total armor delivered.	Armor yet to be delivered.
				Per cent.		*Tons.*		*Tons.*	*Tons.*	*Tons.*
Maine	Battle ship	Oct. 1, 1898	June 1, 1901	(a)	Apr. 18, 1901	3	30½	2,419	2,419	0
Missouri	do	Oct. 11, 1898	June 11, 1901	98	Oct. 24, 1901	585	36	2,409	2,409	0
Ohio	do	Oct. 5, 1898	June 5, 1901	82	July 31, 1901	3	34	2,427	2,427	0
Virginia	do	Feb. 15, 1901	Feb. 15, 1904	44	Apr. 21, 1903	18	26¼	3,332	810	2,522
Nebraska	do	Mar. 7, 1901	Mar. 7, 1904	27	June 30, 1902	13	16	3,332	2,256	1,076
Georgia	do	Feb. 18, 1901	Feb. 18, 1904	36	Sept. 30, 1902	13	19⅝	3,332	597	2,735
New Jersey	do	Feb. 15, 1901	Feb. 15, 1904	45	Dec. 23, 1902	276	22	3,332	847	2,485
Rhode Island	do	do	do	45	Dec. 31, 1902	177	22½	3,332	847	2,485
Pennsylvania	Armored cruiser	Jan. 10, 1901	Jan. 10, 1904	59	Mar. 14, 1902	21	14	1,908	1,679	229
West Virginia	do	Jan. 24, 1901	Jan. 24, 1904	59	Mar. 24, 1902	20	14	1,908	1,795	113
California	do	Jan. 10, 1901	Jan. 10, 1904	41	Apr. 21, 1903	193	27½	1,908	299	1,609
Colorado	do	do	do	63	June 26, 1902	35	17¼	1,908	1,663	245
Maryland	do	Jan. 24, 1901	Jan. 24, 1904	57	Apr. 25, 1902	20	15	1,908	1,618	290
South Dakota	do	Jan. 10, 1901	Jan. 10, 1904	38	Feb. 5, 1903	14	25	1,908	298	1,610
St. Louis	Protected cruiser	Mar. 11, 1901	Mar. 11, 1904	28	Nov. 29, 1902	12	20½	731	12	719
Milwaukee	do	Apr. 17, 1901	Apr. 17, 1904	31	Dec. 17, 1902	12	20	731	23	708
Charleston	do	Mar. 30, 1901	Mar. 30, 1904	50	Mar. 30, 1903	2	24	731	146	585
Connecticut	Battle ship		Mar. 15, 1906	18	No delivery			3,542		3,542
Louisiana	do	Oct. 15, 1902	do	24	do			3,542		3,542
Tennessee	Armored cruiser	Feb. 9, 1903	Aug. 9, 1906	8	do			2,190		2,190
Washington	do	Feb. 10, 1903	Aug. 10, 1906	6	do			2,190		2,190
Vermont	Battle ship	June 20, 1903	Dec. 20, 1906	0				3,505		3,505
Kansas	do	June 16, 1903	Dec. 16, 1906	3	Armor not contracted for.			3,505		3,505
Minnesota	do	June 20, 1903	Dec. 20, 1906	3				3,505		3,505
Idaho	do	Contract not yet made.		0				3,062		3,062
Mississippi	do			0				3,062		3,062
Total								65,659	20,145	45,514

OCTOBER 1, 1903.

a Completed.

PROJECTILES.

Satisfactory progress has been made during the past year in the manufacture of projectiles, and several large contracts have been given out.

The requisites for all armor-piercing projectiles now being that they shall, at a prescribed velocity, perforate, unbroken, a plate of hard-faced armor equal in thickness to the diameter of the projectile, and then be in condition for effective bursting.

Common or forged steel shell are required to perforate, unbroken, a hard-faced armor plate of a thickness equal to one-half the diameter of the shell and then be in condition for effective bursting.

RANGE FINDERS.

No satisfactory new type of range finder adapted for use on ship-board has come to light during the past year.

GAS CHECKS.

A number of gas checks of new types have been made for trial, but the tests have not proceeded far enough to determine their respective values.

SIGHTS.

Much attention has been given to the subject of sights and several new types are now being made for trial. A considerable number of new sight mountings have been supplied to vessels in commission, and much work of similar character is now in process for other vessels.

New telescopic sights of different magnification have been made for trial, and a new adjustable telescope having a range of from 2½ to 9 diameters with very slight change of length has been developed and a number have been made for test on shipboard.

It is proposed hereafter to supply telescopic sights, as well as open day and night sights, on both sides of all guns of and above 3 inches in caliber, when not mounted in turrets. Experiments are being made with telescopic sights attached to 6-pounder guns.

ELECTRICAL DEVICES.

New types of controlling mechanisms for gun elevating gear, for rammers and ammunition hoists are being tried with the prospect of excellent results.

A new system of range and battle order transmitters and receivers has been developed and will be installed in the vessels now building.

SMALL ARMS.

The same unsatisfactory condition as to small arms that existed at the date of the Bureau's last report still continues, though possibly to a worse degree, as the 6-millimeter arms still in service are wearing out.

The Bureau renews its recommendation of the previous year that the 15,000 small arms of this caliber still in service be withdrawn and replaced by United States magazine rifles, caliber .30.

CONVERSION OF 6-INCH GUNS.

Eleven 6-inch B. L. guns have been converted to rapid-firing guns, leaving but few more to be converted.

GUN FORGINGS ORDERED.

During the past year the following gun forgings have been ordered:

13-inch ..... sets..	1	6-inch ..... finished guns..	12
12-inch ..... do...	17	5-inch ..... sets..	10
10-inch ..... do...	9	4-inch ..... do...	34
8-inch ..... do...	42	4-inch ..... finished guns..	12
8-inch ..... finished guns..	24	3-inch ..... sets..	60
7-inch ..... sets..	13	3-inch ..... finished guns..	3
7-inch ..... finished guns..	36		
6-inch ..... sets..	100	Total	373

NICKEL STEEL.

The use of nickel steel for the manufacture of heavy ordnance being comparatively a new industry in this country, it is of interest to note that excellent progress is being made in the manufacture of these gun forgings.

The difficulty at first experienced in getting good results from transverse test bars has been overcome, and the average results now obtained are considerably above the requirements of the specifications.

The following, taken at random from a number of test sheets, shows the average of a number of tests:

Forgings for tube.

	Tensile strength.	Elastic limit.	Per cent extension.	Per cent contraction.
	Pounds.	*Pounds.*		
Obtained	96,750	65,875	19.2	36.5
Required	90,000	55,000	18.0	30.0
Formerly required (carbon steel)	85,000	45,000	18.0	30.0

TORPEDOES.

The only development of consequence during the past year in connection with torpedoes has been the preliminary test of a turbine-driven torpedo. So far as the action of the turbine was concerned little was left to be desired, and its strength, simplicity, and durability commend it for use in place of the intricate and delicate engines and valve gearing heretofore used. While the torpedo in question was fitted with an air flask designed for a pressure of only 1,500 pounds per square inch, the torpedo easily attained a speed of 30 knots for 1,200 yards. With an air flask designed for a pressure of 2,250 pounds and a superheater this torpedo would undoubtedly be capable of a speed of 35 knots for 1,200 yards, 29½ knots for 2,000 yards, and 24½ knots for 3,000 yards.

Two years ago an experimental torpedo fitted with a superheater attained a speed of 35.6 knots over a range of 800 yards with an initial air pressure of 1,500 pounds per square inch.

If it is a question of running torpedoes at a speed of 18 or 20 knots for a distance of 3,000 or 4,000 yards, the question of accurate control of the gyroscope for the length of time required to travel those distances must receive further consideration.

Conflicting statements are received from abroad as to the speed of the latest types of torpedoes at different ranges, but it is evident that a considerable increase in both has been obtained and that efforts are being made to achieve still better results.

The Bureau is now having some air flasks made to withstand much higher pressures than have heretofore been used in this country for experimental purposes, and expects within a short time to contract for torpedoes having a speed of 35 knots for 1,200 yards, a preliminary agreement having already been made. An extended series of experiments is now being made at the torpedo station to determine the accuracy of the adjustable gyroscope.

The omission of torpedoes from quite a number of the latest battle ships and armored cruisers has been a subject of considerable comment, and the question of their value as part of the armament of such vessels is a subject with respect to which there is a divided opinion.

It is the opinion of this Bureau that the most effective use of torpedoes is most likely to be obtained when they are used on vessels designed especially to use them, such as torpedo boats and submarine boats. Their value on board large vessels is, to say the least, problematical. The gun, with its great power and accuracy, is and must be the main factor in all decisive naval combats. The torpedo may occasionally get in its deadly work and may have an important effect upon the battle tactics of a fleet, but it is not likely to decide an action. There is undoubtedly a strong sentiment at present in favor of the use of torpedoes on board large vessels. How long it will continue it is impossible to say, but many arguments are presented to show why they should be carried. These arguments are largely based upon tactical considerations and theory, and upon the assumption that the torpedo is a weapon of long range, high speed, and great accuracy. The various theories are in the main good, but theory and practice do not always go hand in hand. It is contended that the absence or presence of torpedoes in battleships and armored cruisers will have a marked effect upon battle tactics, and that a fleet of vessels equipped with them will possess an advantage over one not so equipped.

It is contended that the moral effect of torpedoes is very great, and it is argued that our ships should carry them because it is the practice of all other nations to do so. If the practice of all other nations is to be our guide in naval matters, we should discard superposed turrets, as no other nation will deign to consider them, except with disfavor. It may, however, be accepted as a principle that general practice is a good guide in most matters. It is stated that tactical war games, played at the Naval War College between fleets with and fleets without torpedoes, have been won by the former whenever the result of the game has been decisive, and that in all cases the fleet armed with torpedoes holds the command of the situation in tactical maneuvers, and, on the other hand, the fleet without them finds itself very much hampered in all its efforts and the opinion is expressed that of two fleets approximately equal in gun fire, one with and one without torpedoes, the fleet having torpedoes is the more likely to gain a decided victory. It is of course understood that in war games an arbitrary and possibly

a fictitious value is given to torpedoes, and that vessels having them are rated as superior to those not having them, other things being equal.

With respect to the torpedo itself it may be stated that if properly adjusted and fitted with a gyroscopic steering device it is fairly accurate at short range, but by no means as accurate as a gun at similar range; the longer the range the greater the probability of inaccuracy of the torpedo. The torpedo has a high speed for a short range only and its speed falls off rapidly, so that at long range its average speed is necessarily slow—that is, relatively slow as compared with its speed at short range. When it is considered that the time of flight of a 12-inch projectile fired from a high-powered gun is 3½ seconds for a distance of 3,000 yards, and that the time of flight of a torpedo at an average speed of 20 knots is 4½ to 5 minutes for the same distance, it will be seen how great the advantage of the gun over the torpedo is in the probability of making a hit at that distance against a moving target. Even when fitted with a gyroscope the torpedo is not always accurate, but has been known to run in a circle—a matter of much greater import when discharged from a ship than if discharged from a torpedo boat, especially if the ship is a part of a fleet in battle formation. There is no question but that the use of underwater torpedo tubes introduces a very complex system. They take up a great deal of space and are, with their auxiliaries, quite heavy.

On board the *Maine*, the compartment for two submerged torpedo tubes occupies as much space as is given to all the ship's provisions. The weight of two tubes, with air compressors, etc., and 8 torpedoes, is 32.8 tons. A torpedo discharged from a fixed underwater tube, and all such tubes are fixed, can only be projected to make a hit on a given bearing. It has been said that the adjustable gyroscope, which causes the torpedo to turn through a predetermined angle and then take up a straight course, overcomes this, but such is not the case, for no matter how great or how small the angle the torpedo turns through before taking up a straight course the object to be attacked must be brought to bear in some particular direction determined upon beforehand, as the adjustable gyroscope can not be instantly changed. After it is set and the torpedo is placed in the tube, the sluice valve in the ship's side opened and the torpedo ready for firing, it is a work of some time to close the valve, drain the tube, reset the gyroscope, and get ready for discharge. In fact, it is a positive disadvantage to use the gyroscope for a curved run, as the torpedo loses speed in turning.

The use of the adjustable gyroscope would enable the commander of a vessel to determine how he will discharge his torpedoes; that is, whether in the direction of the launching tube or in some other direction, but he must always bring his enemy on the bearing determined upon, no matter what it may be. For certain torpedo-boat tactics it is possible that the adjustable gyroscope may be useful, but it is not thought to be of special utility for use on board ship. From the Bureau's point of view it is always preferable to discharge a torpedo for a straight rather than for a curved run, as it is believed that the chance of hitting is greater in the straight run.

The torpedo is essentially a weapon of opportunity, and probably of remote opportunity. No case is recorded of one vessel having torpedoed another, nor of the use of the automobile torpedo having affected any naval combat. Sentiment at present seems to be in favor

of a long-range torpedo to be used in fleet actions, the argument being that a fleet of 8 vessels extended in a column 3,000 yards long, with intervals of 400 yards, that if a torpedo is fired at this column, presenting such a large target, it will stand about one chance in four of making a hit, and that the effect will be to keep them beyond the range of torpedoes or to seriously hamper their maneuvers, with the possibility of more serious damage. This is a problem not likely to be solved except in battle. The subject, however, is one of great importance, is purely a tactical one, and should be settled once for all by a tactical board.

SUBMARINE BOATS.

Several submarine boats of the Holland type have been in commission during the past year and have been handled exclusively by officers and enlisted men of the Navy, who have become quite expert in their management, and it is fair to state that these boats give promise of usefulness within their proper sphere. With increased familiarity with them, the boats are more skillfully handled, and so far as known to the Bureau they fulfill the conditions for which they were built, as far as can be determined, except in actual warfare. Their utility will, of course, depend largely upon the skill and nerve of their crews in time of war.

The *Protector*, built by the Lake Torpedo Boat Company, gives promise of being a useful and practicable vessel. She has not yet been officially tested, though her builders have asked for a trial, which will soon take place.

In the Bureau's last annual report reference was made to explosions which had occurred on board submarine torpedo boats *Holland* and *Fulton*, and also on board a French submarine. A similar accident occurred on a submarine boat of the *Holland* type at Barrow, England, in February, 1903. The account stated:

> At Barrow an electric battery which had just been charged on board one of the submarine boats suddenly exploded and injured six men. A naval man rushed on board and got two out, but was then overcome by the fumes. All were eventually rescued and the four worst cases were taken to the hospital.

The nature of the accident or its cause is not clearly stated, but it serves to show that unusual precautions must be taken to prevent accidents of this kind. It is known that when storage batteries become short-circuited large quantities of gases and acid fumes are given off, which might result in the asphyxiation of the crew in a boat not well ventilated.

ACCIDENT ON BOARD THE MASSACHUSETTS.

On January 16, 1903, a serious accident occurred on board the battleship *Massachusetts*, while at target practice off the island of Culebra, near Porto Rico, which resulted in the death of nine of the crew. It appears that previous to commencing target practice instructions had been given to test some new combination electric and percussion primers, the firing to be done with the electric circuits.

Each of the guns of the starboard (after) 8-inch turret, in which the accident occurred, had fired one or more shots, the officer in charge of the turret standing on top of the turret watching the target and observing the fall of the projectiles, after which he changed his posi-

tion to one in rear of the turret, from which point he looked through the opening in rear of the right-hand gun. He observed that the breech of that gun was closed and that the gun was ready for firing, electrically, when one of the gun crew leaned over and cocked the firing lock, as is necessary for percussion firing, thereby breaking the electric circuit and rendering it impracticable to fire the gun electrically, to do which it became necessary to lower the hammer, or firing bolt (that is, to uncock the firing lock), which would restore the electric circuit. Fearing that in so doing the hammer might slip from the hand and thus prematurely fire the gun by percussion, the officer in charge of the turret, who was still standing outside, directed the men to stand clear of the breech of the gun, and then directed one of the crew of the gun to unlock and open the breech block slowly—the gun being primed, lock cocked, and firing lanyard hooked—his idea evidently being to withdraw the breech block and swing it around clear of the gun and then lower the hammer of the firing lock sufficiently to extract the primer, close the breech, and again insert the primer.

The breechblock was unlocked, withdrawn, and swung partly round, when from some cause, probably the fouling of the lock lanyard, the lock snapped, firing the primer by percussion, igniting the charge in the gun, which filled the turret with flame and powder gas, resulting in the ultimate death of every man in the turret.

Prior to the accident everything pertaining to the turret and the gun mechanism was in proper condition, and the accident was in no way due to defective material or installation. At the time of the accident the left-hand gun was loaded and had its breech open, but, strange to say, the powder charge was not ignited by the intense heat and flame with which the turret must have been filled.

The matter was thoroughly investigated by a court of inquiry ordered by the commander in chief, and subsequently by a general court-martial ordered by the Department.

ACCIDENT TO IOWA'S 12-INCH GUN.

On April 9, 1903, while the U. S. S. *Iowa* was engaged in target practice off Pensacola, Fla., an accident occurred to the left-hand 12-inch gun (No. 9) in her forward turret, whereby the chase of the gun forward of the "D" hoop was blown off.

This gun was assembled and machine finished at the naval gunfactory in 1895, the forgings being procured by contract, and had passed the required tests. Previous to the accident the gun had been fired 127 rounds in all. Two rounds had just been fired; on the next, the one hundred and twenty-eighth round, when the gun gave way, it was loaded with a full charge of 205 pounds of smokeless powder and a forged-steel common shell with base fuse containing a bursting charge of about 36 pounds of black powder. The powder, index 124, was put up in March, 1902, and delivered to the *Iowa* when she was on the South Atlantic Station in June of that year. The projectile had recently been overhauled, both fuse and base plug having been removed, red leaded, and replaced. There was no indication of the shell having exploded in the bore of the gun; in fact, several persons stated that they saw it strike the water short of the target.

Retests of powder charges of the same index number and weight as that of the charge fired when the gun gave way, and supposed to be

as far as practicable identical with that charge, showed no material change from the original results given by the powder when it was tested for acceptance. No one in the turret was injured by the accident, nor was the mount or any of the turret fixtures injured, but some of the fragments of the chase of the gun were driven violently through the deck directly under the muzzle of the gun, causing the death of three men on the deck below, two of whom were killed outright and one dying soon after; four others were slightly injured. The structural damages to the vessel were comparatively slight.

A board of officers was ordered by the commander in chief to investigate all the circumstances, but the board was unable to form a conclusion as to the cause of the accident. As soon as this board had made its report the vessel was ordered by the commander in chief to go out and proceed with her target practice, which was concluded without mishap, thus restoring confidence to the officers and crew.

When the vessel arrived at a navy-yard the injured gun was removed and a new one was installed in its place. The injured gun was sent to the naval gun factory for examination and retest of the material, and a special board was ordered to further investigate the matter. This board made a careful examination of the subject, concluding its report as follows:

The *Iowa's* 12-inch gun, so far as its design and material are concerned, was sufficiently strong to safely withstand the pressure caused by the normal action of the charge of smokeless powder actually used in it.

There is no reason to suppose that the *Iowa's* 12-inch gun had been in any way weakened by previous firing, and in the opinion of the board it was as strong and well fitted to resist the strains of firing up to the time when it burst as at the time it was first installed on board the *Iowa*.

The *Iowa's* 12-inch gun was burst by the sudden application to the bore under the "E" hoop of a gas pressure greatly exceeding that which would result from the normal action of the powder charge being fired in it.

This excessive pressure was not caused by any abnormal action of the projectile, but was probably due to an abnormal action of the powder charge producing wave pressures.

Although wave pressures as registered by gauges are often very great, the duration of their action is so small that their effects upon a gun are very rarely serious, and it is probably far beyond their power to overstrain, much less to burst the thicker parts of a modern gun. It is only when a gaseous condensation acts upon a section of the gun which lacks the inertia due to thickness and weight, and which the rapid motion of the projectile unmasks to the almost instantaneous application of the full pressure that rupture of the gun wall occurs.

The board is of the opinion that the liability of wave pressures occurring in the guns is very much diminished in the smokeless powder now being manufactured, due to the employment of uniform methods by the various powder makers under the present rigid specifications, and to improved methods of ignition of the charge. It is further of the opinion that the method of construction adopted for the new guns, in which the chase hoop is extended to the muzzle end, probably provides sufficient strength to the gun to resist the wave pressures developed even in the least homogeneous powders now in service.

This finding of the board is, of course, a theory which may or may not be correct.

The cause of such accidents is usually so obscure that the absolute cause is rarely discovered. Some believe that the rupture of the gun was due to the explosion of the shell in the bore, and that the explosion of the shell was due to the fact that it was not fitted with a base cover. Shells have frequently exploded in the bores of guns, but beyond damaging the rifling no damage has resulted.

As regards base covers, none of the *Iowa's* shell were fitted with

them, though many were fired safely, and probably not 1 per cent of all the shells fired from all the ships in commission have been fitted with base covers.

This is the first serious accident that has happened to any of the large-caliber, built-up, steel guns of the Navy, and the Bureau fears that the true cause will always be a mystery.

INDIANA'S 13-INCH GUN NO. 2.

In September, 1897, a report was received from the *Indiana* that one of her 13-inch guns showed an imperfection in the compression slope, which looked like a fine crack.

An expert was sent to examine the gun and it was concluded that the defect was due to erosion. At this time the gun had been fired 32 rounds.

Reports were received from time to time showing a slight enlargement of the defect until the gun had been fired 71 rounds in all, when the defect became so marked that instructions were given not to fire the gun again.

In May last this gun was removed from the *Indiana*, being replaced by a new one, and was sent to the Naval Gun Factory for examination, when the fact was revealed that there was a crack of about 14 inches in length, extending entirely through the tube, which must have been due to a defect in the manufacture of the forging.

EXPLOSION OF AN 8-INCH SHELL AT FORT LAFAYETTE, NEW YORK HARBOR.

On February 19, 1903, an accidental explosion of an 8-inch shell occurred at Fort Lafayette.

A number of loaded shell had been turned in from the *Brooklyn* to be fitted with base covers, to do which it became necessary to remove the fuses and the bursting charges. It appears from the report of a board which investigated the matter, that one of the magazine employees, being unable to remove a fuse with an ordinary fuse wrench, attempted to cut a score in the rear end of it with a hammer and cold chisel in order that he might use a more powerful wrench or screwdriver, the result being that the fuse which was of the base-percussion type exploded, igniting the bursting charge of the shell.

Three men were killed outright, one being the unfortunate author of the accident; three others died from the effects of injuries received; another was seriously wounded, and two others were slightly wounded.

The instructions with regard to removing fuses from loaded shell explicitly direct that no undue force shall ever be used, and in case a shell contains a fuse that does not readily unscrew, it shall be put to one side and marked "fuse hard to move." This accident appears to have been due to a disregard of the observance of ordinary precautions.

BURSTING OF A 4-INCH GUN.

On December 4, 1902, a new 4-inch 40-caliber gun burst while being proof fired at the naval proving ground.

The gun had previously been fired seven rounds, with pressures varying from 9 to 17½ tons. At the eighth round the jacket split at its

rear end, exposing 4 inches of the tube and blowing out the breechblock. No one was injured. It was discovered afterwards that the charge of powder which burst the gun was taken by the gunner by mistake from a lot of small experimental tubular powder, not intended for and too quick for this type of gun.

NAVAL MAGAZINE, PHILIPPINE ISLANDS.

The Bureau has in previous reports called attention to the unsatisfactory and unsafe conditions existing in the Philippine Islands so far as a naval magazine is concerned.

The place now used for the storage of powder is an old Spanish fort at Cavite. This fort is within the limits of the Cavite Navy-Yard and within 200 yards of a thickly populated town.

The question of a new site was considered by a board of naval officers, who recommended that the magazine be located elsewhere and with as little delay as possible. No action has as yet been taken to this end, the Bureau's estimates of the preceding year being disallowed.

A few months ago a petition signed by a number of Filipinos was received at the Navy Department, praying that the magazine be removed from their midst.

The Bureau again respectfully brings this matter to the attention of the Department, and urges that its estimates now submitted for removing the magazine to a safer place be favorably considered.

There is plenty of Government land in the vicinity of Manila or Subig Bay where magazines can be built, and the work should be begun with as little delay as possible.

The Bureau begs to call the Department's attention to a recent accident at Lowell, Mass., where, on July 29 last, two small gun-powder magazines, situated in the midst of the residences of some fifty mill operatives, exploded with terrific violence, killing more than a score of people and injuring nearly fifty others. Should an explosion occur at Cavite, similar, if not more fatal, results would probably follow, as the amount of powder stored there is much greater than that which caused such havoc at Lowell.

NAVAL MAGAZINE, NEW ENGLAND.

For several years past the Bureau, in its annual report, has called the attention of the Department to the fact that there is no naval magazine of any consequence east of New York, the one at Boston being so far within the city limits as to be of no further use for the purpose for which intended, and the one at Portsmouth, N. H., being so small as to be of no account. Congress at its last session directed the Secretary of the Navy to appoint a board of naval officers to select and recommend a site for a naval magazine on or near the coast of New England, north of Cape Cod, and to submit estimates, etc. Such a board was appointed, and after a careful examination of the coast from Cape Cod to Eastport selected a site which, in the Bureau's opinion, is admirably adapted for the purpose. The Bureau recommends the Department's approval of the report of the board, and further recommends that Congress be requested to appropriate at its next session one-half the sum specified by the board as necessary to complete the

work, in order that the land may be acquired and the work of improving it, and of erecting the necessary buildings, may be undertaken as soon as possible. It is believed that the site recommended will answer for both Boston and Portsmouth, and the Bureau trusts that final action on this important subject will soon be taken.

ARMOR AND ARMAMENT FOR NEW SHIPS.

During the past year plans have been prepared for three battle ships of 16,000 tons displacement, to be named the *Vermont*, *Kansas*, and *Minnesota*, and plans for two 13,000-ton battle ships, the *Idaho* and *Mississippi*, are in an advanced state. The three former vessels have been contracted for. Plans have also been prepared for two gunboats of 1,000 tons displacements, namely, the *Dubuque* and *Paducah*, and for two 3,000-ton training ships, the *Cumberland* and *Intrepid*, and a training brig, the *Boxer*.

The two gunboats have been contracted for and the three training vessels will be built in the navy-yards. The three 16,000-ton battle ships are practically duplicates of the *Louisiana* and *Connecticut* with some slight changes in armor, believed to be an improvement.

The heavy water-line belt, which is from 11 to 9 inches thick in the two former ships, is changed to one having a uniform thickness of 9 inches in the latter vessels, and the upper and lower casemate in the latter is a uniform thickness of 7 inches, whereas in the *Louisiana* class it is 6 inches for the lower and 7 inches for the upper casemate.

The battery remains the same as for the *Louisiana* class, namely, four 12-inch, 45-caliber, guns in two elliptical, balanced, electrically controlled turrets, having inclined front plates; eight 8-inch, 45-caliber, guns in four waist turrets, placed in quadrilateral, and twelve 7-inch, 45-caliber, rapid-firing guns in casemates on the gun deck behind 7-inch armor, the forward pair firing right ahead and the after pair firing right astern.

The secondary battery consists of twenty 3-inch (14-pounders) guns; twelve 3-pounder, semi-automatic guns; six 1-pounder automatic guns; two 1-pounder semi-automatic guns; two 3-inch field guns; two machine guns, caliber .30, and six automatic guns, caliber .30, a total of 74 guns.

The battery recommended for the two 13,000-ton battle ships, *Idaho* and *Mississippi*, consists of four 12-inch, 45-caliber, guns in two turrets; eight 8-inch, 45-caliber, guns in four turrets in quadrilateral, and eight 7-inch, 45-caliber, rapid-firing guns in casemates on the gun deck. The secondary battery consists of twelve 3-inch (14-pounders) guns; six 3-pounder, semi-automatic guns; four 1-pounders; two field guns; two machine guns, and six automatic guns, caliber .30, a total of 52 guns. These vessels will have a complete water-line belt of a uniform thickness of 9 inches from barbette to barbette and tapering to 4 inches at the bow and stern. The upper and lower casemate armor will be of a uniform thickness of 7 inches. The amount of armor assigned to these vessels is 3,377 tons each, equal to 25.9 per cent of their trial displacement, as against 3,992 tons, or 24.9 per cent for the *Louisiana* class. The design includes two submerged torpedo tubes.

Gunboats *Dubuque* and *Paducah* will each carry six 4-inch, 50 caliber, guns, four 6-pounder semi-automatic, and two 1-pounder rapid-fire, and two automatic, caliber .30.

The two 3,000-ton training ships, *Cumberland* and *Intrepid*, will each carry six 4-inch, 40 caliber, guns, four 6-pounder semi-automatic, and two 1-pounder rapid-fire, and two automatic, caliber .30.

The training brig *Boxer* will have no battery.

NAVAL GUN FACTORY.

This establishment is in charge of Capt. E. C. Pendleton, U. S. Navy, who relieved Capt. E. H. C. Leutze, U. S. Navy, on October 15, 1902.

As elsewhere stated in this report, the gun factory has been operated at its full capacity, both day and night, throughout the past year, this unusual activity being necessary in order that the armament for new vessels may keep pace with their construction.

In addition to finishing the guns, mounts, and ordnance outfits of battleships *Ohio* and *Missouri*, and those for the six cruisers of the *Denver* class now practically completed, there remains to be completed the armament for 27 new vessels, namely: Twelve battle ships, 8 armored cruisers, 3 protected cruisers, 2 gunboats, and 2 training ships. These vessels require 1,605 guns of all calibers—498 for their main batteries and 1,107 for secondary batteries. In detail, the number of guns required is as follows:

Main battery guns:		Secondary battery guns:	
12-inch	48	6-pounder S. A	16
10-inch	8	3-pounder S. A	264
8-inch	120	1-pounder automatic	94
7-inch	80	1-pounder R. F	94
6-inch	218	3-inch field	46
4-inch	24	Machine guns (small arm caliber)	46
3-inch	395	Machine guns, automatic	152

Of the forty-eight 12-inch guns required, 20 are in process of manufacture at the Naval Gun Factory, and forgings have been ordered for 12 more, leaving 16 sets of forgings yet to be ordered. All these guns will be manufactured at the naval gun factory.

The forgings for the eight 10-inch guns required have been ordered, and all of these guns will be manufactured at the Naval Gun Factory.

Of the one hundred and twenty 8-inch guns required, 64 are in process of manufacture at the Naval Gun Factory, and 20 sets of additional forgings have been ordered. Contract has been made with the Midvale Steel Company for 24 finished guns and mounts, leaving 12 sets of forgings yet to be ordered. It is probable that these guns will be manufactured as follows:

At the Naval Gun Factory	72
By the Midvale Steel Company	24
At the Army Gun Factory	24
Total	120

Of the eighty 7-inch guns required, contract has been made with the Bethlehem Steel Company for 36 finished guns and mounts. Forgings have been ordered for 12 guns, leaving 32 sets of forgings yet to be ordered. It is probable that these guns will be manufactured as follows:

At the Naval Gun Factory	20
By the Bethlehem Steel Company	36
At the Army Gun Factory	24
Total	80

All the forgings have been ordered for the two hundred and eighteen 6-inch guns required, and 191 sets have been delivered. Most if not all of these guns will be manufactured at the Naval Gun Factory.

For the twenty-four 4-inch guns required, 12 sets of forgings have been ordered, leaving 12 sets yet to be ordered. All of these guns will probably be made at the Naval Gun Factory.

Of the three hundred and ninety-five 3-inch guns required, 100 are in process of manufacture at the Naval Gun Factory and 25 have been purchased by contract, leaving 270 yet to be provided. Further manufacture of guns of this caliber has been suspended, pending the development of a satisfactory semi-automatic gun. Orders have been given to three different manufacturers for type guns, and it is hoped that one or more of them will prove to be satisfactory.

The sixteen 6-pounder guns required are on hand and several others are in process of manufacture.

Of the two hundred and sixty-four 3-pounder S. A. guns required, 150 are being made in the naval gun factory, and 100 have been ordered by contract, leaving but 14 to be ordered.

The ninety-four 1-pounder guns required are in process of manufacture at the naval gun factory, also the ninety-four 1-pounder automatic guns and 46 field guns.

The 46 machine and 152 automatic guns of small-arm caliber will be procured by purchase as required.

During the past year 150 new guns have been completed at the naval gun factory, and 681 guns are in process of manufacture.

The average number of men employed has been 2,440.

The total amount expended for labor for ordnance purposes at the naval gun factory during the last fiscal year was $5,128,550.

It is probable that the gun factory will be able to supply, within the time required, the batteries of the next 11 vessels to be completed, namely, 6 armored cruisers of the *Pennsylvania* class and 5 battle ships of the *Virginia* class; but after that, unless its facilities are considerably increased, and at a very early date, there will probably be a long period of delay, unless supplemented by private manufacturers and the army gun factory.

The bad effects of running the machinery and power plant continuously will manifest itself ere long, and must sooner or later result in a large expenditure for repairs and renewals.

The general condition of the plant is good, however, at present.

In addition to the manufacture of new guns and mounts an unusual amount of work has been done in improving the gun mountings, sights, loading gear, and handling room fittings of ships in commission, which is necessarily of a hurried character and much more troublesome than new work.

The manufacture of brass cartridge cases for rapid-fire guns has been carried on successfully, and the installation of a small steel-casting plant has proved to be a great convenience. New machinery has been installed in place of old, so far as funds would permit.

Improvements made during the past year and others recommended will be referred to under the head of navy-yards and stations in this report.

Attention is invited to the report of the superintendent of the naval gun factory, to be found in the appendix.

NAVAL PROVING GROUND AND SMOKELESS-POWDER FACTORY.

This establishment was in charge of Lieut. Joseph Strauss, U. S. Navy, until December 30 last, when he was ordered to sea duty, being temporarily relieved by Lieut. J. R. Patton, who remained in charge until July 6, 1903 (a period of six months), during which he administered the affairs of the station with marked ability. Lieutenant Patton was relieved on the above date by Lieut. A. C. Dieffenbach, U. S. Navy, who is now in charge.

During the past year the following guns have been proved up to June 30, 1903, namely: One 13-inch, five 12-inch, thirty-nine 6-inch, forty-five 5-inch, fifty-six 4-inch, seventy-five 3-inch, and twenty-one 6-pounders, a total of 244, as against 128 the preceding year.

No accidents have happened to any guns during proof or otherwise at the proving ground, with the exception of one 4-inch gun, which was burst by using the wrong powder by mistake.

Two hundred and fifty-five projectiles of various caliber, representing lots manufactured, have been tested, and in most cases successfully, there being but few failures.

Fifty-five armor plates have been tested, including 12 deck plates of nickel steel. All the regular armor plates passed the prescribed tests successfully.

Two hundred and two lots of smokeless powder have been tested ballistically; of these, 50 were redried or returned powders from ships in service. Of these returned powders, it is of interest to note that only one gave a pressure that was excessive, and that not dangerously so. Some were found to be unsuitable for the guns for which they were originally intended, having dried out and become quicker, and have been assigned to guns of smaller caliber. These powders were of earlier manufacture and not dried to the extent now required.

A large number of gun mounts have been tested at the proving ground during the year, and some small-caliber semi-automatic guns of various manufacture, all giving good results.

Numerous experiments have been made with gas-check pads, primers, fuses, cartridge bags, and miscellaneous details, as a result of which several important improvements have been made.

A number of interesting and successful experiments have been made in firing armor-piercing shell filled with high-explosive charges through armor plates. Nearly all of these experiments were entirely successful, and a complete detonation of the charges was effected in rear of the plate after perforation. The Bureau is now preparing a considerable number of 8-inch armor-piercing shell filled with high-explosive charges for a final test of the system employed.

Certain improvements are necessary at the proving ground, which will be treated of under the heading of navy-yards and stations.

During the past year 720,310 pounds of smokeless powder has been made at the powder factory at Indian Head, as against 496,353 pounds the preceding year, an increase of 45 per cent, the average output for 306 working days being 2,354 pounds of powder per day, at an average cost of 44.85 cents per pound, as against 80 cents (including the alcohol) when bought by contract.

During the year there was manufactured at Indian Head, for the use of the powder factory, 621,098 pounds of ether, 1,649,936 pounds of fortifying acid, and 623,375 pounds of nitrocellulose.

The following large expenditures of material not manufactured on the premises were required:

Caustic soda	pounds	33,369
Sodium nitrate	do	1,489,454
Sulphuric acid:		
93 per cent	do	1,364,519
98 per cent	do	910,014
Cotton waste	do	551,968
Alcohol	do	1,332,298
Fortifying acid	do	1,250,922
Soda ash	do	8,400
Bituminous coal	tons	8,900
Pea coal	do	127

In the Bureau's last report it was recommended that a plant for the manufacture of sulphuric acid be erected at Indian Head, and the reasons therefor were stated. Such a plant was estimated for, but the item was stricken out before the passage of the naval bill. The Bureau renews its recommendation and has included in its estimates for the fiscal year 1904–5 an item for this purpose. There is always great hostility and opposition on the part of private manufacturers to the Government doing its own work, and there was opposition to the Government establishing a smokeless-powder factory; but the establishment has been of incalculable benefit to the Government, and the amount of powder manufactured there has in no way affected the interests of private manufacturers, all of whom have been given as much work as they could properly perform.

Congress at its last session made a small appropriation for the improvement of the smokeless-powder factory, and steps to that end are now in progress.

Attention is invited to the report of the inspector of ordnance in charge of the naval proving ground and smokeless-powder factory, to be found in the appendix of this report.

TORPEDO STATION.

This establishment remains in charge of Lieut. Commander F. F. Fletcher, U. S. Navy. The facilities of the station have been chiefly employed in experimental work, in connection with powder and other explosives, with primers, fuses, detonators, electric firing devices, mines, countermines, torpedoes and various torpedo devices, and for the instruction of officers and enlisted men in all matters pertaining to torpedoes, their care, adjustment, and use, and in practical electricity as used on shipboard.

Torpedoes and torpedo outfits have been issued to submarine torpedo boats *Adder*, *Pike*, *Moccasin*, *Porpoise*, *Grampus*, and *Shark*, and to torpedo-boat destroyers *Worden*, *Hull*, *Truxton*, *Stewart*, *Whipple*, and *Hopkins*, and to torpedo boat *Wilkes*.

A complete outfit of naval defense mines has been issued to the *Maine*, *Missouri*, *Ohio*, *Kearsarge*, and *Alabama*, and the outfits for several other vessels are in process of manufacture.

A large number of combination electric percussion primers have been manufactured and issued to ships. Additional machinery is now being installed to increase the facilities for performing work of this class.

Electric firing devices have been supplied to 34 vessels and electric torpedo firing attachments to 6 torpedo vessels.

The manufacture of smokeless powder for small-caliber guns has been continued, but the capacity of the experimental powder plant being small, the output was but 46,000 pounds. A small dehydrating plant has been installed to obviate the drying of nitrocellulose, which is always attended with danger.

War heads for torpedoes have been loaded and shipped for 2 battle ships and 7 torpedo vessels.

Complete testing outfits for smokeless powder have been prepared and issued to a large number of vessels in commission.

Repairs and improvements have been made to the buildings, wharves, machinery, etc., as required, and they are all in a generally good condition.

During the past year the chemist of this station visited the naval magazines at New York, Boston, and Portsmouth for the purpose of inspecting and testing the various powders stored at those points, and also inspected and tested the several indices of powder on 22 vessels in commission, some 538 samples being tested.

The chemist from the naval proving ground made similar inspections and tests of powder stored at Philadelphia and Norfolk and on board of all vessels in commission at those points.

Compete descriptions and photographs of testing outfits, with detailed instructions for their use, have been prepared and issued as required.

A number of pneumatic firing keys for firing guns by electricity have been made and issued.

New types of percussion and of electric primers have been designed, and a considerable number are in process of manufacture.

Eighty enlisted men have received instruction in various branches, 57 of whom qualified for seamen gunners; 53 received instruction in diving.

A class of 148 men received instruction as machinists, oilers, firemen, and coal passers for torpedo boat service.

The class of officers receiving instruction in torpedoes was unusually small, owing to the demand for their services afloat.

Seven new piers have been constructed, with bulkheads between them, affording accommodations for 15 additional torpedo boats and destroyers.

A number of improvements have been made which are referred to under the head of "Navy-yards and stations."

Attention is invited to the report of the inspector of ordnance in charge of the Naval Torpedo Station, to be found in the appendix.

ESTIMATED COST OF ARMOR AND ARMAMENT TO COMPLETE NEW SHIPS.

It is estimated that, in addition to funds already authorized, it will cost $35,786,209 to complete the armor and armament of all vessels now authorized.

ALLOWANCE AND COST OF AMMUNITION FOR TARGET PRACTICE.

During the past year the allowance of ammunition for target practice has been revised.

The number of practices has been reduced to two, one preliminary and one record practice, with one additional or primary practice for vessels during the first year of commission.

All target practice is to be conducted hereafter with service ammunition; that is, with full charges of smokeless powder and forged steel shell in order that the gun pointers may become accustomed to firing under battle conditions and that the ordnance outfit may be thoroughly tested at each practice.

It is estimated that the cost of target practice per annum of all completed vessels will amount to $1,366,000, and when all vessels now building are completed, to $2,690,000 per annum, exclusive of the cost of targets, etc., which is very considerable.

The cost of recent target practice for certain vessels is given as an indication of what two practices a year cost:

Indiana (battleship)	$43,780.82
Alabama (battleship)	53,989.16
Kearsarge (battleship)	37,621.46
Illinois (battleship)	45,486.62

GUNNERY.

It is gratifying to note the marked improvement that has been made in gunnery during the past year. Vessels which a few months ago made very poor records at target firing now make very creditable ones, due to present methods of training gun pointers and of conducting target practice.

While all of our ordnance material is not perfect, it goes to show that good shooting depends upon the man behind the gun quite as much and probably more than it does upon the gun and the ammunition.

A great deal has been learned within the past year with regard to sights, gun mounts, etc., which is now being put in practice, and which will be productive of greater efficiency in the future. Radical changes can not, however, be made instantly; they are troublesome and expensive and require much time, especially when they relate to vessels of older construction, many of which are absent from home ports. Patience and perseverance, however, will regulate these matters in due time. It would without doubt be very desirable to alter the gun mounts of a number of vessels to adjust them to the most recent requirements, and to supply them with new sights, etc., and this work is being done gradually, as time and opportunity permit.

SPEED VERSUS ARMOR AND ARMAMENT.

In the Bureau's last annual report reference was made to the great sacrifice of offensive and defensive qualities which must follow if high speed is demanded on a limited displacement.

This fact has been exemplified with force in preparing designs for two 13,000-ton battleships, the *Idaho* and *Mississippi*, authorized by the last Congress. With a speed of 17 knots these vessels can be given powerful batteries and exceptionally good armor protection, but to give them a speed of 18 knots requires 6,000 additional horsepower (an increase of 60 per cent), with the assignment of 570 tons of weight, therefor, and a corresponding reduction in armament or armor, or both, to that extent. When it is considered that the weight assigned for the entire armament of a first-class battleship of the *Louisiana* class is but 945 tons, the extent of such a sacrifice will be appreciated.

Unquestionably it would be desirable to give these 13,000-ton ships a trial speed of 18 knots, but to do so would deprive them of a large per cent of their power of offense and defense, and therefore the board on construction decided to design them for a speed of 17 knots.

Much has been said and written upon the necessity of homogeneity of a fleet, especially as regards speed, but speed is the most fluctuating quality a vessel possesses, depending upon the condition of the ship's bottom, her trim, draft, condition of her boilers, quality of fuel and efficiency of the engines and fire-room force, so that ships of similar design will always differ in speed to the extent of several knots, depending upon their respective condition.

It is argued that the causes which operate to reduce the speed of vessels are common to all vessels of the same class, which is true, but such causes do not operate at the same time. Homogeneity of speed at the maximum rate of speed is therefore difficult if not impracticable of attainment. Armor and armament remain constant, and with respect to them homogeneity can be maintained. As an illustration of what may happen to vessels of the same type, built at the same time, the case of the *Oregon* and *Indiana* during the Spanish-American war may be cited. The former vessel was in prime condition and made an excellent speed at the battle off Santiago de Cuba, whereas the latter was the slowest of the battleships in the West Indies fleet, due entirely to her condition at that time.

There is considerable misapprehension concerning the speed of the *Oregon* on her celebrated trip from California to the West Indies, many persons believing that it was very high, whereas her average speed for 14,511 knots was 11.16 knots per hour.

OFFICIAL INSPECTION OF ORDNANCE MATERIAL.

The importance of official inspection and test of ordnance material, such as the manufacture of guns and mounts, powder, projectiles, and armor, and the installation of the two first named by commissioned line officers of the Navy can not be too forcibly emphasized.

It is the only guaranty the Government has that each is of the best quality, and failure in the quality of material means *disaster to the fleet*. Tactics and strategy are of but little account unless the guns, ammunition, and armor of the vessels of the Navy are first class in every particular. At the present time the idea seems to prevail that these matters are comparatively unimportant, and that anybody will do to inspect ordnance material or to supervise the installation of the extremely intricate ordnance outfits of modern vessels, but the Bureau knows how necessary and important it is to have all such work carefully supervised by competent officials, and desires to place itself on record to the effect that if the Government is to have thoroughly satisfactory results in matters which pertain essentially to the fighting qualities of its ships of war, the inspection and test of all important ordnance details *must be made by or under the immediate supervision of commissioned line officers of the Navy* who are familiar with the military necessities of the case. This is not intended as a reflection upon the integrity of the various manufacturers who are supplying ordnance material for the Navy, and they will understand that it is not. The commission of an officer of the Navy is an absolute guaranty that

the work performed and material delivered under his inspection is first class in every respect.

Aside from the advantage to the Government of securing good material, it is greatly benefited by having officers possessing a practical knowledge of the manufacture and adjustment of the intricate details of ships of war and their numerous auxiliaries. Officers are much more useful on account of such knowledge, and the captain of a battleship who has a good navigator, ordnance officer, and chief engineer is fortunate, and can well put up with ordinary ability in all other positions.

It may be assumed that every line officer of the Navy can perform the usual duties of his grade in a satisfactory manner, but the number who are thoroughly familiar with the electrical, torpedo, and ordnance outfits of their vessels by no means embraces all line officers—not because they are indifferent or inefficient, but from lack of opportunity to acquire familiarity with such details—therefore the Bureau argues that it is good and sound policy to give the line officers of the Navy as many opportunities as possible to gain a thorough knowledge concerning the manufacture of the materials which enter into the construction of a vessel, her armament, ammunition, armor, and auxiliaries, and the adjustment and use of such mechanical details as enter into the vessel as a whole.

The Bureau of Ordnance is essentially one of materiel, and it appreciates that the efficiency of a vessel depends primarily upon the perfection of its physical details, and in no department is this more apparent than in her ordnance outfit, as the best gun is rendered useless if bad primers are supplied, and so on throughout the whole. Every physical and mechanical detail must be practically perfect, otherwise the vessel is a failure for war purposes, and it will be an unfortunate day for the Navy if the time ever comes when official supervision over the manufacture and installation of its ordnance material ceases.

Owing to the difficulty experienced by the Bureau in obtaining and retaining the services of enough officers to carry on its work efficiently, due to various causes, it feels at liberty to set forth its views as to the importance of certain kinds of duty which are performed by United States naval officers. There can be no question but that the highest and most important duty a naval officer can perform is to efficiently fill his proper station on board ship. His whole training, not merely a part of it, is for this purpose. Personal characteristics and temperament will have as much to do with his ultimate success as education and training, but aside from these factors, it may be assumed that the officer who is best equipped in professional matters will, other things being equal, be the most useful.

It will no doubt be by many considered rank heresy to say that a very large part of a naval officer's education can better be obtained on shore than at sea, but such, in the opinion of the Bureau, is the case. After an officer has passed through the junior grades and has acquired the sea habit, it is a comparatively easy matter for him to take up the duties of the higher grades as he reaches them. Matters of organization, discipline, and the routine duties of ship life come naturally, because his early training and experience all tend in these directions. A modern ship of war, however, is a vast machine, filled with the costly products of the steel mill and the machine shop.

Almost every branch of the mechanical arts and sciences enters into her construction and equipment, and it is the duty of the naval officer to understand, care for, and use to the best advantage the intricate details which make up the vessel as a whole. To do these things efficiently he must have a very considerable knowledge of material and of mechanics; more than he can well learn when attached to a vessel in commission. The best and easiest way to obtain practical knowledge of material is at the works where it is produced, and as Government inspection is necessary at such points, they are the natural schools for the instruction of officers in the matters referred to. This is particularly so with reference to ordnance material. In our efforts to make all line officers engineers, and all engineers line officers, let us not forget to make a few ordnance officers also, as the Government will need them badly in time to come.

OFFICERS FOR ORDNANCE DUTY.

After an experience of several years in charge of the Bureau of Ordnance the Chief of the Bureau is forced to the conclusion that the present method of performing important ordnance duty—that is, such as relates to the design and development of ordnance material—by the temporary detail of naval officers, is far from satisfactory. It is not that the officers are not efficient, for they are most efficient as far as their opportunities permit, but the ordnance of to-day is an entirely different affair from that of a few years ago, and at the present time consists of a mass of intricate details which can not be mastered in a comparatively short tour of duty by anyone, no matter how clever he may be, and the development in guns, explosives, mechanical details, projectiles, armor, and auxiliaries of all kinds goes on so rapidly that one and all must be carefully followed and studied if we hope to keep pace with the march of improvement and excel in this important branch of the naval service. In ordnance matters a knowledge of what has been done is almost as essential as a knowledge of what is to be done, else much valuable time is wasted in thrashing out old straw.

For a number of years past the duties devolving upon the Bureau have steadily been growing more onerous, until at the present time they have reached a point where it is impossible for the few officers available for ordnance duty therein to keep pace with and do justice to many important matters which should receive long and careful investigation and consideration, but which from the force of circumstances must now be disposed of offhand for lack of sufficient help.

The Bureau is unable at the present moment to suggest a remedy for these conditions. It almost seems as if a permanent corps of specially trained officers to perform ordnance duty is necessary if we expect to do justice to this important branch of the service. It is no exaggeration to say that should one or two officers now on duty in the Bureau be detached without proper reliefs—and proper reliefs are very hard to find—the most important duties of the Bureau would practically come to a standstill and serious embarrassment would follow. Such a system, therefore, can not be a good one.

There are many branches connected with ordnance matters, each of which is so important that it requires the undivided attention of persons having special knowledge and aptitude for long periods of time

to attend to them properly. Short details, such as are now made necessary by the exigencies of the service, are simply perplexing to the officers themselves, embarrassing to the Bureau, and prejudicial to the service.

No private establishment would expect or pretend to maintain efficiency by changing its technical staff every year or two, and yet this is exactly what takes place in the Ordnance Department of the Navy.

It would seem to some to be a comparatively easy matter to obtain civil employees, who would be permanent, to carry on important technical duties, but such is not the case, as there is no field to draw such persons from in this country, and, moreover, a certain amount of military knowledge is required which civilians do not possess; that is, a knowledge of ships and the use of ordnance materials afloat. No man is competent to design a proper gun sight or mount unless he understands the conditions under which they are to be used in actual service, which involves a knowledge of the principles and practice of gunnery.

Such success as the Bureau has had is not due to the present system, but has been achieved in spite of it.

Many of the duties of the Bureau are efficiently performed by civil employees, but there are some which must be performed by persons having a naval training.

RÉSUMÉ.

As this is probably the last annual report that the present Chief of the Bureau of Ordnance will make, owing to his statutory retirement in March next, it may not be out of place to refer briefly to some of the more important matters which have been accomplished since he assumed charge of the Bureau in June, 1897.

Probably the most important has been the introduction of new types of guns of all calibers of exceptional power and of greater strength, both as to material and design, than any heretofore made for the Navy, the development and general introduction of smokeless powder, of armor of greater resisting quality, and of projectiles having greater power of penetration. Since June, 1897, 71 new veselss have been authorized, namely, 15 battle ships, 8 armored cruisers, 9 protected cruisers, 4 harbor-defense monitors, 2 gunboats, 16 torpedo-boat destroyers, 14 torpedo boats, and 3 training vessels. These vessels require 2,182 guns, namely, 744 for main and 1,438 for secondary batteries, and it has been the duty of the Bureau to design and manufacture or to prepare for the manufacture and purchase of these guns, with their mounts, turret fittings, powder, and projectiles, and to supply or arrange for the supply of their armor and numerous ordnance equipments. A great deal of this work is incomplete, but it has for the most part been inaugurated, and a very large part of it is now completed or in progress.

Very extensive improvements have been made at the Naval Gun Factory in the way of new buildings, new machinery, new processes, and new industries, and others have been projected and are now under way. A smokeless-powder factory has been built at Indian Head, Md., and has been in successful operation from the start.

A satisfactory high explosive has been secured.

The manufacture of brass cartridge cases has been successfully undertaken at the Naval Gun Factory.

The condition of all important naval magazines has been vastly improved, and very large additions have been made to several of them. At New York a thoroughly first-class and very extensive naval magazine, comprising some twenty-odd fine buildings, has been established at Iona Island. Funds have been procured for a magazine at Puget Sound, and negotiations for the purchase of the site are now in progress.

Steps have been taken to secure a suitable magazine in New England.

Submerged torpedo tubes have been introduced in certain battle ships.

New batteries have been supplied to the *Chicago* and *Baltimore*, and funds have been procured for new batteries for the *Newark*, *Albany*, and *New Orleans*, and a partial battery for the *New York*.

Nearly all the 6-inch ordinary B. L. guns in service have been converted into rapid-firing guns.

A very considerable number of reserve guns for ships of the Nav have been acquired, and also for auxiliary cruisers.

Many improvements have been made to the ordnance outfits of vessels both in and out of commission.

The use of nickel steel gun forgings has been introduced, giving a larger factor of safety to the gun.

Almost every detail connected with naval ordnance has been improved in some way. The Bureau went through the Spanish-American war without a hitch or failure of any kind. Supplies of every kind, in abundant quantity, were always on hand whenever and wherever needed.

The Bureau successfully warded off the determined efforts that at one time threatened to force upon it guns and projectiles of more than questionable character.

Congress has dealt most liberally with the Bureau. Since June, 1897, it has received appropriations to the extent of $66,000,000, and no question has ever arisen with the accounting officers of the Government or with the Department as to its disbursement.

The relations of the Bureau to the Department and to its other bureaus have been uniformly harmonious.

The Bureau has always invited and welcomed intelligent criticism and has endeavored to profit by it. It has always enjoyed the confidence of the Department. It has endeavored to be fair and reasonable in all its transactions with persons having business with it, both inside and outside the Department, and has always endeavored to carefully guard the interests of the Government.

The Bureau does not claim to have made no mistakes, but so far as known none has been made, except of insignificant character.

The development of the Navy since 1897 has given the Bureau great opportunities accompanied by great responsibilities, and it is doubtful if during any period of its history so much discretion in so many important matters has been left to its chief, who trusts that time will show that his judgment has been good.

The Bureau is deeply indebted to the officers and civil employees both in the Bureau and at the several navy-yards and stations, but especially at the Naval Gun Factory, who from time to time have rendered such valuable service, and extends its best thanks to them for their hearty and cordial cooperation. The Bureau can not close this report without a word of special commendation for the present assistant chief of the Bureau, Lieut. Volney O. Chase, U. S. Navy, whose professional attainments, industry, good judgment, and general efficiency have rendered him a most valuable assistant.

The following papers accompany this report:

A.—Officers performing ordnance duty.
B.—Table showing assignment of guns of main and secondary batteries.
C.—Table showing torpedo armament of vessels.
D.—Table showing ship and armor contracts.
E.—Detailed estimates for the fiscal year ending June 30, 1905.
F.—Abstract of offers for furnishing supplies or services for fiscal year ending June 30, 1903.
G.—Annual report of the Superintendent of the Naval Gun Factory.
H.—Annual report of the inspector of ordnance in charge, Naval Proving Ground, Indian Head, Md.
I.—Annual report of the inspector of ordnance in charge of the Naval Torpedo Station, Newport, R. I.

Respectfully,

CHARLES O'NEIL,
Chief of Bureau of Ordnance.

The SECRETARY OF THE NAVY.

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REPORT OF THE CHIEF OF THE BUREAU OF CONSTRUCTION AND REPAIR.

DEPARTMENT OF THE NAVY,
BUREAU OF CONSTRUCTION AND REPAIR,
Washington, D. C., September 24, 1903.

SIR: In compliance with the Department's instructions, I have the honor to submit the report of the Bureau for the fiscal year ending June 30, 1903, and estimates for appropriations required for the fiscal year ending June 30, 1905.

The estimate marked "A" is for the salaries of certain clerical employees of the Bureau.

The estimate marked "B" is for the construction and repair of vessels at navy-yards and on foreign stations, the purchase of stores, materials, machinery, tools of all kinds, and the proper performance of all general work for the Navy in the line of construction and repair. The demands upon this appropriation naturally increase in proportion to the growth of the Navy and the increased number of naval stations to be maintained.

The estimates marked "B Special" are for the improvement of construction plants at the several navy-yards and naval stations, and are in amount barely sufficient to provide for the necessary modifications of existing plants to render them efficient and modern and to provide new installations already contemplated.

The estimates marked "B 1 Special" is for two seagoing tugs (one of the few seagoing tugs of the Navy, the *Leyden*, was lost during the past year; the present number of such tugs is inadequate, and this estimate is accordingly submitted).

The estimates marked "C" are for the pay of the regular clerical force at the several navy-yards carried on the "Civil Establishment."

The estimate marked "D" is for the amounts required by this Bureau under appropriation "Increase of the Navy, Construction and Machinery," for new vessels authorized by Congress to June 30, 1904.

ESTIMATES, APPROPRIATION CONSTRUCTION AND REPAIR, 1904–1905.

Estimates of appropriations required for the fiscal year ending June 30, 1905, by the Bureau of Construction and Repair, Navy Department.

Detailed objects of expenditures and explanations.	Estimated amount required for each detailed object.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for current fiscal year, ending June 30, 1904.
A. *Salaries.*			
1 chief clerk (appropriated)	$2,000.00		
1 clerk of class 4 (submitted)	1,800.00		
3 clerks of class 3 (appropriated)	4,800.00		
1 clerk of class 2 (appropriated)	1,400.00		
(This clerk is now appropriated for as assistant draftsman.)			
1 clerk of class 2 (submitted)	1,400.00		
2 clerks of class 1 (appropriated)	2,400.00		
1 assistant messenger (appropriated)	720.00		
1 laborer (appropriated)	660.00		
The following are now paid out of appropriation "Increase of the Navy, construction and machinery," and are estimated for under requirements of the act of February 25, 1903:			
2 writers (submitted)	2,504.00		
8 writers (submitted)	8,814.08		
6 copyists (submitted)	6,159.84		
6 special laborers (submitted)	5,709.12		
4 special laborers (submitted)	3,505.60		
4 special laborers (submitted)	2,504.00		
2 special laborers (submitted)	951.52		
		$45,328.16	$11,980.00
The following draftsmen and other employees are now employed in this Bureau, and are engaged upon work directly connected with the construction of ships, under appropriation "Increase of the Navy, construction and machinery," and if they are to be considered a part of the permanent and regular force of the Bureau, they should be appropriated for:			
1 writer (submitted)	1,252.00		
1 writer (submitted)	1,101.76		
1 copyist (submitted)	1,026.64		
2 special laborers (clerical) (submitted)	1,903.04		
1 special laborer (clerical) (submitted)	876.40		
3 special laborers (messengers, etc.) (submitted)	1,427.28		
1 special laborer (messenger boy) (submitted)	325.52		
1 chief ship draftsman (submitted)	2,817.00		
2 leading ship draftsmen (submitted)	4,707.52		
1 leading ship draftsman (submitted)	2,203.52		
1 electrical expert aid (submitted)	2,203.52		
4 ship draftsmen (submitted)	8,113.96		
7 ship draftsmen (submitted)	13,146.00		
10 ship draftsmen (submitted)	17,277.60		
3 ship draftsmen, first class (submitted)	4,732.56		
4 ship draftsmen, second class (submitted)	5,608.96		
4 ship draftsmen, third class (submitted)	5,008.00		
3 ship draftsmen, fourth class (submitted)	3,380.40		
4 assistant ship draftsmen, first class (submitted)	4,106.56		
2 assistant ship draftsmen, second class (submitted)	1,752.80		
1 assistant ship draftsman, third class (submitted)	751.20		
1 model finisher (submitted)	1,101.76		
1 special laborer (photographer) (submitted)	1,026.64	85,850.64	
Total		131,178.80	11,980.00
B. *Construction and repair of vessels.*			
For preservation and completion of vessels on the stocks and in ordinary; purchase of materials and stores of all kinds; steam steerers, pneumatic steerers, steam capstans, steam windlasses, and all other auxiliaries; labor in navy-yards and on foreign stations; purchase of machinery and tools for use in shops; carrying on work of experimental model tank; designing naval vessels; construction and repair of yard craft, lighters and barges for use at home stations; wear, tear, and repair of vessels afloat; general care, increase, and protection of the Navy in the line of construction and repair; incidental expenses for vessels and navy-yards, inspectors' offices, and bureau, such as advertising, freight, foreign postage, telegrams, telephone service, photographing, books, professional magazines, plans, stationery, and instruments for drafting room, eight million dollars: *Provided*, That no part of this sum shall be applied to the repair			

Estimates of appropriations required for the fiscal year ending June 30, 1905, by the Bureau of Construction and Repair, Navy Department—Continued.

Detailed objects of expenditures and explanations.	Estimated amount required for each detailed object.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for current fiscal year, ending June 30, 1904.
B. *Construction and repair of vessels*—Continued.			
of any wooden ship when the estimated cost of such repairs, to be appraised by a competent board of naval officers, shall exceed ten per centum of the estimated cost, appraised in like manner, of a new ship of the same size and like material	$8,000,000.00	$8,000,000.00	$8,000,000.00
B. *Special.—Improvement of construction plants.*			
For repairs to and improvement of plant at navy-yard, Portsmouth, N. H. (appropriated)	20,000.00	20,000.00	20,000.00
For repairs to and improvement of plant at navy-yard, Boston, Mass. (appropriated)	30,000.00	30,000.00	50,000.00
For repairs to and improvement of plant at navy-yard, New York, N. Y. (appropriated)	50,000.00	50,000.00	50,000.00
For repairs to and improvement of plant at navy-yard, League Island, Pa. (appropriated)	20,000.00	20,000.00	30,000.00
For repairs to and improvement of plant at navy-yard, Norfolk, Va. (appropriated)	15,000.00	15,000.00	30,000.00
For repairs to and improvement of plant at navy-yard, Pensacola, Fla. (appropriated)	20,000.00	20,000.00	
For repairs to and improvement of plant at navy-yard, Mare Island, Cal. (appropriated)	20,000.00	20,000.00	30,000.00
For repairs to and improvement of plant at navy-yard, Puget Sound, Washington (appropriated)	30,000.00	30,000.00	75,000.00
B 1. *Special.—Construction and repair of vessels.*			
For two seagoing tugs with all fittings complete, each (submitted)	175,000.00	350,000.00	
C. *Civil establishment.*			
At navy-yard, Portsmouth, N. H.:			
1 clerk to naval constructor (appropriated)	1,400.00		
2 writers, at $1,017.25 each (appropriated)	2,034.50		
At navy-yard, Boston, Mass.:			
1 clerk to naval constructor (appropriated)	1,400.00		
2 writers, at $1,017.25 each (appropriated)	2,034.50		
At navy-yard, New York, N. Y.:			
1 clerk to naval constructor (appropriated)	1,400.00		
3 writers, at $1,017.25 each (appropriated)	3,051.75		
3 clerks, at $1,200 each (submitted)	3,600.00		
3 clerks, at $1,100 each (submitted)	3,300.00		
At navy-yard, League Island, Pa.:			
1 clerk to naval constructor (appropriated)	1,400.00		
1 writer, at $1,017.25 (appropriated)	1,017.25		
At navy-yard, Washington, D. C.:			
1 clerk to naval constructor (appropriated)	1,400.00		
At navy-yard, Norfolk, Va.:			
1 clerk to naval constructor (appropriated)	1,400.00		
2 writers, at $1,017.25 each (appropriated)	2,034.50		
At navy-yard, Charleston, S. C.:			
1 clerk to naval constructor (appropriated)	1,400.00		
At navy-yard, Pensacola, Fla.:			
1 clerk to naval constructor (submitted)	1,200.00		
1 writer, at $1,017.25 (appropriated)	1,017.25		
At naval station, New Orleans, La.:			
1 clerk to naval constructor (appropriated)	1,200.00		
At navy-yard, Mare Island, Cal.:			
1 clerk to naval constructor (appropriated)	1,400.00		
2 writers, at $1,017.25 each (appropriated)	2,034.50		
At navy-yard, Puget Sound, Wash.:			
1 clerk to naval constructor (appropriated)	1,400.00		
1 clerk, at $1,000 (submitted)	1,000.00		
1 clerk, at $900 (submitted)	900.00		
At naval station, Cavite, P. I.:			
1 clerk to naval constructor (submitted)	1,400.00		
2 clerks, at $1,200 each (submitted)	2,400.00		
		$40,824.25	$27,024.25
			Amount appropriated act of Mar. 3, 1903.
D. *Increase of the Navy, construction and machinery.*			
On account of hulls and outfits of vessels and steam machinery of vessels heretofore authorized (See joint letter below.)	$23,826,860.00	$23,826,860.00	$15,025,032.00

WASHINGTON, D. C., *September 8, 1903.*

SIR: 1. We have the honor to submit herewith, in duplicate, joint estimates (inclosures 1 and 2) of the amounts required by the bureaus of Construction and Repair and Steam Engineering, under appropriation "Increase of the Navy, construction and machinery," for work on new vessels authorized by Congress to June 30, 1905, as per statements in detail herewith (inclosures 3 and 4), viz:

Sheet D.

Under Bureau of Construction and Repair:		
For fiscal year 1903–4	$19,815,340	
For fiscal year 1904–5	16,408,404	
		$36,223,744
Under Bureau of Steam Engineering:		
For fiscal year 1903–4	9,375,922	
For fiscal year 1904–5	8,242,800	
		17,618,722
Aggregate		53,842,466
Balance in Treasury available for above July 1, 1903 (less the sum of $260,000 for one gunboat to take the place of the *Michigan* on the Great Lakes, authorized by act approved May 4, 1898, said vessel to be built as soon as permitted under treaty)		30,015,606
Appropriation required for fiscal year 1904–5		23,826,860

2. This amount, $23,826,860, is the estimated amount required to be appropriated for work on new vessels authorized by Congress for "Increase of the Navy, Construction and Machinery," for the fiscal year ending June 30, 1905.

Very respectfully,

F. T. BOWLES,
Chief Constructor, U. S. Navy, Chief of Bure
C. W. RAE,
Engineer in Chief, U. S. Navy, Chief of Bureau.

The SECRETARY OF THE NAVY.

ADDITIONS TO THE NAVY.

The additions to the effective force of the Navy by the completion of vessels building under contract and by transfers from other departments of the Government are listed in the table below. While these additions are considerable in number and value to the Navy, they are by no means as great as should have been made in the period since the date of the last annual report. They consist of the battle ship *Maine*, the 4 monitors *Arkansas*, *Nevada*, *Florida*, and *Wyoming*, 12 destroyers, 1 torpedo boat, and 7 submarine boats. This list should have been increased by 2 battle ships (the *Missouri* and *Ohio*), whose completion was delayed by the nondelivery of armor and by strikes, and by the 5 cruisers of the *Denver* class, whose completion is expected within a few months, but which have dragged out a length of time unnecessary for the building of small cruisers.

The gunnery trials of the *Maine* and of the monitors developed the enormous force of recoil of the new high-powered 6-inch and 12-inch guns and the necessity for providing additional stiffening of the gun and turret foundations. This has been provided, and resulted in satisfactory tests.

The army transports *Hancock* and *Lawton* were transferred to the Navy Department without cost, and have been fitted up for use as receiving ships, the former at New York and the latter at Mare Island. The hospital ship *Relief* was similarly transferred and has since

remained in ordinary at the navy-yard, Mare Island. The schooner *Eagre* was transferred from the Treasury Department for a nominal consideration.

Tabulated statement of data relative to trials and acceptances of vessels since the last annual report.

Name of vessel.	Type.	Date of trial.	Speed required by contract.	Speed obtained on trial.	Date of preliminary acceptance.	Date of final acceptance.	By whom built.
		1902.	*Knots.*	*Knots.*	1902.	1903.	
Maine	Battleship	Aug. 23	18	18	Dec. 29	.....	Wm. Cramp & Sons.
Arkansas	Monitor	Aug. 7	11½	12.03	Sept. 8 1903.	May 11	Newport News Co.
Nevada	do	Dec. 18 1903.	11½	13.04	Mar. 5	.....	Bath Iron Works.
Florida	do	Mar. 19 1902.	11½	12.40	May 26 1902.	.....	Lewis Nixon.
Wyoming	do	Oct. 29	11½	11.8	Dec. 31	.....	Union Iron Works.
Bainbridge	Torpedo-boat destroyer.	Sept. 11	28	28.45	Nov. 4	June 9	Neafie & Levy.
Barry	do	Aug. 27	*a* 28	28.12	Oct. 30	...do...	Do.
Chauncey	do	Aug. 12	*a* 28	28.64	Oct. 22	...do...	Do.
Dale	do	Apr. 29 1903.	*a* 28	28.05	July 17 1903.	May 22	Wm. R. Trigg Co.
Hopkins	do	Apr. 18 1902.	*a* 28	29.02	May 27	.....	Harlan & Hollingsworth.
Hull	do	Dec. 6	*a* 28	28.04	Mar. 18	.....	Do.
Lawrence	do	Oct. 10	*a* 28	28.40	Apr. 7 1902.	.....	Fore River Engine Co.
Paul Jones	do	July 8	*a* 28	28.91	July 15	May 15	Union Iron Works.
Stewart	do	Oct. 22	*a* 28	29.69	Nov. 14	May 21	Gas Engine and Power Co.
Truxtun	do	June 25	*a* 28	29.58	Aug. 16	Apr. 24	Maryland Steel Co.
Whipple	do	July 18	*a* 28	28.24	Oct. 9	July 8	Do.
Worden	do	Sept. 11	*a* 28	29.86	Oct. 17	...do...	Do.
De Long	Torpedo boat	May 30 1903.	*a* 25	25.52	Aug. 11 1903.	Mar. 26	Geo. Lawley & Son.
Plunger	Submarine torpedo boat.	May 13–19 1902.	*b* 8	8.87	June 24	.....	Holland Torpedo Boat Co.
Adder	do	Nov. 11–19 1903.	*b* 8	8.73	Jan. 9	June 11	Do.
Grampus	do	Apr. 1 – 8 1902.	*b* 8	8.45	May 11	.....	Do.
Moccasin	do	Nov. 12–19 1903.	*b* 8	8.41	Jan. 13	June 11	Do.
Pike	do	Apr. 1–10	*b* 8	8.51	May 11	.....	Do.
Porpoise	do	May 14–21	*b* 8	8.41	June 24	.....	Do.
Shark	do	...do...	*b* 8	8.27	...do...	.....	Do.

a Standardized trial under modified contract.
b Standardized surface run, light, with gasolene engine.

The torpedo-boat destroyer *Macdonough*, built by the Fore River Engine Company, trials on January 4 and May 27, 1903, was accepted on July 3, 1903, and was, therefore, practically completed within the fiscal year.

Vessels dropped from the Navy.

Name.	Type.	Status.	Disposition.	Appraised value.
Leyden	Iron steam tug	Regular Navy	Wrecked; stricken from Navy Register Jan. 30, 1903.	.....
Monocacy	Iron paddle-wheel gunboat (double ender.)	do	Stricken from Navy Register June 22, 1903. Not yet disposed of; sale authorized.	$8,000

VESSELS UNDER CONSTRUCTION.

Vessels building for the increase of the Navy are listed in the following table, which includes all those authorized by law, with the exception of the *Idaho* and *Mississippi*, whose plans are not yet completed. The total estimated cost of completing these vessels, exclusive of armor and armament, from the 1st of July, 1903, is $76,478,055, of which $30,015,605 is appropriated and available in the Treasury at that time. The estimated expenditures on account of these vessels, exclusive of armor and armament, in the fiscal year 1904 is $29,191,262 and in 1905 $24,651,204.

The rate of progress of vessels under construction at the present time presents some very encouraging indications for completion of many of the most important contracts, but, considered as a whole, the progress made during the last fiscal year has been very unsatisfactory. This is particularly the case with the five battle ships of the *Virginia* class, which were contracted for in February, 1901, to be completed in three years. In July 1902 these vessels were about a year behind their contract dates. During the past year they have fallen still further behind, and, on the average, have progressed only about one-half as much as would be required to conform to the contract rates.

The final delivery of the *Missouri* has been delayed somewhat by necessary alterations in the turret supports as a result of the *Maine's* gunnery trials. All the vessels on the Pacific coast have been delayed considerably by strikes. The battle ship *Louisiana*, for which the contract was signed October 15, 1902, has made excellent progress, and the sister ship *Connecticut*, building in the navy-yard, New York, although slightly behind the *Louisiana*, has, notwithstanding the necessity for building a slip and erecting a gantry crane over it, made progress well up to the best previous average of contract-built ships. Better prospects for the delivery of structural-steel material, and the completeness and accuracy of the plans upon which these ships and those subsequently authorized are being built, furnish good grounds for believing that the future progress upon these later vessels will exceed any results heretofore attained, and that the completion of the hull and machinery will not delay these vessels beyond the contract period.

During the past year delays in the delivery of armor have caused but few delays in the delivery of vessels, and much armor is now on hand in shipyards in advance of the needs of the builders.

Insufficient capacity for the production of nickel-steel protective deck plates has been the cause of inadequate deliveries to the shipbuilders and has embarrassed and delayed their work to a considerable extent in the past year and is still operative.

Work on the cruiser *Galveston*, at the shipyard of William R. Trigg Company, Richmond, Va., was stopped on December 24, 1902, by the suspension of that firm. On May 14, 1903, the contract was forfeited, and this Bureau, acting jointly with the Bureau of Steam Engineering, proceeded with the launching of the *Galveston* and such work as was necessary for the removal of that vessel to the navy-yard, Norfolk, Va., for completion. The *Galveston* reached the navy-yard on September 18, 1903. The removal of this vessel from the contractors' works was necessary because the extensive improvement of the prop-

erty providing for the fitting out of the vessel in the basin at a level of 17 feet above the normal level of the James River had not been completed.

Work on the cruiser *Chattanooga*, building by Lewis Nixon (The Crescent Shipyard), at Elizabeth, N. J., was stopped on June 18, 1903, by the closing of the works, resulting in the forfeiting of the contract on August 15, 1903, and the removal of the *Chattanooga* when 74 per cent completed, and the torpedo boats *Nicholson* and *O'Brien* when 99 and 98 per cent completed, to the navy-yard, New York.

The causes for the extensive delays which have occurred in the construction of naval vessels have received during the past year the careful attention of the Bureau, and efforts have been made to remove every obstacle within its control. A discussion of these causes of delay was prepared by the Bureau and submitted to the Department in February last, and is reprinted on page 40 of this report.

Vessels building under contract.

Name.	By whom building.	Estimate of—		Contract time.	Expiration of contract time.	Months behind contract on July 1, 1903.
		Degree of completion July 1, 1903.	Probable date of completion.			
BATTLE SHIPS.		*Per ct.*		*Months.*		
Missouri	Newport News Shipbuilding and Dry Dock Co.	94	Nov. 15, 1903	32	Aug. 30, 1901	23.8
Ohio	Union Iron Works	77	May 1, 1904	32	June 5, 1901	33
Virginia	Newport News Shipbuilding and Dry Dock Co.	36	Dec. 1, 1905	36	Feb. 15, 1904	16.4
Nebraska	Moran Bros. Co.	21	Apr. 20, 1906	36	Mar. 7, 1904	18
Georgia	Bath Iron Works	31	Feb. 11, 1907	36	Feb. 18, 1904	18.2
New Jersey	Fore River Ship and Engine Co.	39	July 1, 1906	36	Feb. 15, 1904	15.25
Rhode Island	do	39	do	36	do	15.5
Louisiana	Newport News Shipbuilding and Dry Dock Co.	16	Mar. 15, 1906	41	Mar. 15, 1906	0
Vermont	Fore River Ship and Engine Co.	0	Dec. 20, 1906	42	Dec. 20, 1906	3
Kansas	New York Shipbuilding Co.	0	Dec. 1, 1906	42	Dec. 16, 1906	0
Minnesota	Newport News Shipbuilding and Dry Dock Co.	0	Dec. 20, 1906	42	Dec. 20, 1906	3
ARMORED CRUISERS.						
Pennsylvania	Wm. Cramp & Sons	52	Oct. 1, 1904	36	Jan. 10, 1904	9.5
West Virginia	Newport News Shipbuilding and Dry Dock Co.	54	Feb. 1, 1905	36	Jan. 24, 1904	10.5
California	Union Iron Works	32	Sept. 1, 1905	36	Jan. 10, 1904	18.5
Colorado	Wm. Cramp & Sons	57	Aug. 1, 1904	36	do	7.5
Maryland	Newport News Shipbuilding and Dry Dock Co.	52	Apr. 1, 1905	36	Jan. 24, 1904	10.9
South Dakota	Union Iron Works	31	Nov. 1, 1905	36	Jan. 10, 1904	19.5
Tennessee	Wm. Cramp & Sons	1	Aug. 9, 1906	42	Aug. 9, 1906	0.5
Washington	New York Shipbuilding Co.	1	Aug. 1, 1906	42	Aug. 10, 1906	0.7
PROTECTED CRUISERS.						
Denver	Neafie & Levy Shipbuilding Co.	93	Dec. 1, 1903	30	June 14, 1902	15
Des Moines	Fore River Ship and Engine Co.	88	Jan. 15, 1904	30	do	15.25
Chattanooga	Lewis Nixon	74		30	do	16.5
Galveston	Wm. R. Trigg Co.	66	Oct. 1, 1904	30	do	20.75
Tacoma	Union Iron Works	79	Nov. 7, 1903	30	do	19
Cleveland	Bath Iron Works	98	Sept. 30, 1903	30	do	13.1

Vessels building under contract—Continued.

Name.	By whom building.	Estimate of—		Contract time.	Expiration of contract time.	Months behind contract on July 1, 1903.
		Degree of completion July 1, 1903.	Probable date of completion.			
PROTECTED CRUISERS—continued.		*Per ct.*		*Months.*		
St. Louis	Neafie & Levy Shipbuilding Co.	26	Jan. 1, 1906	36	Mar. 11, 1904	20
Milwaukee	Union Iron Works	24	Oct. 15, 1905	36	Apr. 17, 1904	18.5
Charleston	Newport News Shipbuilding and Dry Dock Co.	43	June 1, 1905	36	Mar. 30, 1904	12.1
GUNBOATS.						
Dubuque	Gas Engine and Power Co.	0	Nov. 29, 1904	18	Nov. 29, 1904	0
Paducah	....do	0	Mar. 6, 1905	20	Mar. 6, 1905	0
TORPEDO BOATS.						
Stringham	Harlan & Hollingsworth Co.	95	(?)	18	Jan. 29, 1899	53.5
Goldsborough	Wolff & Zwicker	99	Nov. 15, 1903	18	Jan. 30, 1899	53
Blakely	Geo. Lawley & Son	99	Nov. 1, 1903	12	Sept. 27, 1899	45
Nicholson	Lewis Nixon	99	Dec. 1, 1903	12	Sept. 26, 1899	46
O'Brien	....do	98	....do	12	....do	46
Tingey	Columbian Iron Works	96	....do	12	Oct. 1, 1899	47.5

Vessels building at navy-yards.

Name.	Where building.	Estimate of—		Constructional period.	Expiration of constructional period.	Months behind constructional period July 1, 1903.
		Degree of completion July 1, 1903.	Probable date of completion.			
BATTLE SHIP.		*Per ct.*		*Months.*		
Connecticut	Navy-yard, New York, N. Y.	12	Mar. 15, 1906	41	Mar. 15, 1906	1.5
TRAINING SHIPS.						
Cumberland	Navy-yard, Boston, Mass.	0	May 1, 1905	20	May 1, 1905	0
Intrepid	Navy-yard, Mare Island, Cal.	0	....do	20	....do	0
TRAINING BRIG.						
Boxer	Navy-yard, Portsmouth, N. H.	0	June 30, 1904	.....	June 30, 1904	0
STEEL TUGS.						
Pentucket	Navy-yard, Boston, Mass.	80	Dec. 16, 1903	.....	Dec. 16, 1903	0
Sotoyomo	Navy-yard, Mare Island, Cal.	38	Jan. 1, 1904	.....	Jan. 1, 1904	0

NEW VESSELS AUTHORIZED.

The plans and specifications of first-class armored cruisers Nos. 10 and 11, *Tennessee* and *Washington*, of 14,500 tons displacement, authorized by Congress July 1, 1902, were completed and advertisement issued November 3, 1902. The contract for the *Tennessee* was signed with Messrs. William Cramp & Sons, of Philadelphia, Pa., on February 9, 1903, and that for the *Washington* with the New York Ship-

building Company, of Camden, N. J., on February 10, 1903, each at the same price of $4,035,000, to be completed in forty-two months.

A description of these vessels, with diagrams, will be found on page 782 of this report.

The plans and specifications of the two gunboats authorized by Congress July 1, 1902, were completed and advertisement issued March 1, 1903. A contract for the *Dubuque*, of about 1,085 tons trial displacement, was signed with the Gas Engine and Power Company and Chas. L. Seabury & Co., Consolidated, on May 29, 1903, at the sum of $295,000. Failing to receive a bid for the *Paducah* within the limit of cost, a second advertisement was issued May 21, 1903, and resulted in a contract with the same firm, signed July 6, 1903, at a price of $355,000, both vessels to be completed in twenty months from the date of contract.

The plans and specifications of the three first-class battle ships Nos. 20, 21, and 22, *Vermont*, *Kansas*, and *Minnesota*, of 16,000 tons displacement, were completed and advertised March 24, 1903. Contracts were entered into with the lowest bidders, as follows: On June 20, 1903, for the *Vermont*, at $4,179,000, with the Fore River Ship and Engine Company, of Quincy, Mass., to be completed in forty-two months; on June 16, 1903, for the *Kansas*, at $4,165,000, with the New York Shipbuilding Company, of Camden, N. J., to be completed in forty-two months; on June 20, 1903, for the *Minnesota*, at $4,110,000, with the Newport News Shipbuilding and Dry Dock Company, Newport News, Va., to be completed in forty-two months.

These vessels were contracted for on the designs prepared for the 16,000-ton battle ships *Connecticut* and *Louisiana*, with slight changes in the belt armor.

The *Connecticut's* main belt in way of the machinery and boilers, 11 inches at top edge and 9 inches at lower edge, was made a uniform thickness of 9 inches, and this uniform thickness extended to replace the first reduction of the *Connecticut's* main belt over the magazines, which in that ship is 9 inches at the top and 7 inches at the bottom, making a net reduction of 74 tons. The upper main belt of the *Connecticut*, 6 inches thick, was increased to 7 inches.

The design of the 13,000-ton battle ships, Nos. 23 and 24, *Mississippi* and *Idaho*, was taken up promptly after the passage of the authorizing act of Congress, of March 3, 1903, and on May 27 the chief constructor presented to the board on construction, for consideration, five sketch designs for the vessels, embodying various types, each of which developed the important features of speed, defensive armor, battery power, and endurance in the different designs possible on the limit of displacement.

Under date of June 10, 1903, the Department adopted the report of the board and directed the Bureaus to proceed with the preparation of the plans and specifications. The work has been prosecuted with vigor and it is expected that the plans will be ready to advertise in November.

The principal features of the design adopted are as follows: Length, 375 feet; breadth, 77 feet; mean draft, 24 feet 6 inches; trial displacement, 13,000 tons; horsepower, 10,000; trial speed, 17 knots. Battery: 12-inch B. L. R., 4; 8-inch B. L. R., 8; 7-inch B. L. R. F., 10; 3-inch B. L. R. F., 12; 3-pounder, 6; 1-pounder, 4; 3-inch field guns, 2; machine guns, 2; automatic guns, 6.

Armor protection: Water-line belt, 9 inches, tapered to 7 inches at bottom in way of machinery space, reduced at ends to 7 inches, 5 inches, and 4 inches; casemate and athwart ship, 7 inches; main turrets, 12 inches and 8 inches; main barbettes, 10 inches, 7½ inches, and 6 inches; lesser turrets, 6½ inches and 6 inches; lesser barbettes, 6 inches and 4 inches; subbarbettes, 3¾ inches; ammunition tubes, 3 inches; conning tower, 9 inches; conning-tower tube, 6 inches.

Full coal capacity, 1,750 tons.

Endurance at 10 knots, 5,750 nautical miles.

VESSELS SURVEYED.

The vessels given in the table below have been surveyed and repairs authorized during the past fiscal year:

Name.	Where surveyed.	Date of survey.	Estimated cost of repairs.
Abarenda	Norfolk, Va	Jan. 28, 1903	$33, 500. 00
Alabama	New York, N. Y	May 22, 1903	13, 904. 00
Alert	Mare Island, Cal	Aug. 28 to Sept. 6, 1902	3, 311. 00
Alexander	Norfolk, Va	Apr. 23, 1903	16, 868. 00
Alliance	do	Dec. 17, 1902	5, 087. 00
Arayt	Cavite, P. I	Aug. 22, 1902	a 23, 490. 00
Arethusa	Boston, Mass	Nov. 1–3, 1902	10, 435. 00
Atlanta	do	June 3–11, 1903	33, 081. 00
Baltimore	New York, N. Y	July 31, 1902	28, 200. 00
Basco	Cavite, P. I	Sept. 5, 1902	a 10, 400. 00
Bennington	Mare Island, Cal	Dec. 19, 1902	35, 005. 00
Brutus	Norfolk, Va	June 27, 1903	9, 924. 50
Buffalo	do	Nov. 21, 1902	5, 872. 00
Cæsar	do	Oct. 14, 1902	10, 115. 53
Chesapeake	do	Mar. 10, 1903	6, 722. 75
Choctaw	do	July 18, 1902	8, 048. 00
Concord	Mare Island, Cal	Dec. 29, 1902	16, 350. 00
Culgoa	Boston, Mass	July 10, 11, 1902	12, 700. 00
Decatur	Norfolk, Va	Mar. 10, 1903	3, 579. 00
Dixie	New York, N. Y	Oct. 25, 1902	226, 905. 00
Dolphin	Norfolk, Va	Mar. 9, 1903	4, 125. 75
Eagle	Portsmouth, N. H	July 1, 1902	6, 475. 00
Essex	do	Nov. 17, 1902	7, 397. 00
General Alava	Cavite, P. I	Mar. 5, 1903	18, 605. 00
Gloucester	Norfolk, Va	Oct. 25, 1902	6, 137. 50
Hancock	New York, N. Y	Mar. 11, 1903 June 4, 1903 June 26, 1903	102, 025. 00 425. 00 12, 790. 00
Hannibal	Norfolk, Va	Apr. 13, 1903	18, 730. 00
Hartford	do	May 21, 1903	3, 580. 00
Hercules	do	Dec. 24, 1902	4, 689. 50
Hist	Boston, Mass	Apr. 21–24, 1903	5, 288. 00
Hornet	Norfolk, Va	Jan. 17, 1903	14, 617. 00
Illinois	do	July 2, 1903	10, 266. 50
Indiana	New York, N. Y	Sept. 24, 1902 May 20, 1903	8, 326. 00 20, 916. 00
Iowa	do	June 5, 1903	264, 085. 00
Isla De Luzon	Cavite, P. I	May 19, 1903	a 2. 000. 00
Kearsarge	New York, N. Y	May 23, 1903	7, 679. 00
Lancaster	Norfolk, Va	Dec. 24, 1902	3, 647. 00
Lawton	Mare Island, Cal	Jan. 6–31, 1903	73, 735. 00
Do	do	Apr. 2, 1903	14, 917. 00
Lebanon	Norfolk, Va	June 29, 1903	3, 675. 00
Machias	Boston, Mass	Sept. 17–18, 1902	5, 350. 00
Marietta	do	May 1–25, 1903	66, 342. 00
Massachusetts	New York, N. Y	Oct. 6, 1902	5, 338. 00
Minneapolis	League Island, Pa	Apr. 20, 1903	72, 867. 00
Monadnock	Amoy, China	Nov. 29, 1902	105. 00
Monongahela	New York, N. Y	Nov. 20, 1902	6, 197. 00
Monterey	Amoy, China	Nov. 29, 1902	3, 060. 00
Nashville	Boston, Mass	Jan. 28–31, 1903	11, 404. 00
Nero	Norfolk, Va	Sept. 16, 1902	12, 145. 00
Do	Boston, Mass	May 12–18, 1903	17, 106. 00
Newport	do	Nov. 28–Dec. 9, 1902	45, 625. 00
Nina	New York, N. Y	Mar. 26, 1903	2, 544. 00
Pampagna	Cavite, P. I	June 3, 1903	a 31, 940. 00
Panay	do	Sept. 24, 1902	a 27, 320. 00
Paragua	do	July 19, 1902	a 32, 930. 00

a Mexican.

Name.	Where surveyed.	Date of survey.	Estimated cost of repairs.
Peoria	Norfolk, Va	Nov. 24, 1902	$3,834.25
Petrel	Mare Island, Cal	Nov. 28, 1902	115,495.00
Philadelphia	Bremerton, Wash	Apr. 3, 1903	4,550.00
Princeton	Cavite, P. I.	Aug. 9, 1902	8,700.00
Do	Uraga, Japan	Oct. 18, 1902	2,186.00
Puritan	Norfolk, Va	Nov. 10, 1902	6,992.00
Do	League Island, Pa	Apr. 29, 1903	33,398.00
Ranger	Mare Island, Cal	Dec. 18–22, 1902	9,116.00
Do	Bremerton, Wash	Jan. 9, 1903	31,888.00
Reina Mercedes	Portsmouth, N. H	Dec. 17, 1902	224,935.00
Do	do	Jan. 3, 1903	5,750.00
Do	do	Jan. 23, 1903	5,625.00
Relief	Mare Island, Cal	June 17, 1903	8,740.00
Richmond	Norfolk, Va	Sept. 26, 1902	8,177.48
Rocket	do	Sept. 24, 1902	6,987.05
San Francisco	do	Mar. 12, 1903	10,202.00
Saratoga	League Island, Pa	Feb. 17, 1903	17,330.00
Scorpion	Boston, Mass	May 20, 1903	5,474.00
Sioux	Portsmouth, N. H	Feb. 16–18, 1903	6,640.00
Solace	Mare Island, Cal	Apr. 6, 1903	7,945.00
Southery	Boston, Mass	Mar. 14–16, 1903	5,469.00
Stewart	Norfolk, Va	July 15, 1903	7,771.90
Tecumseh	do	July 2, 1902	6,544.00
Texas	do	Nov. 26, 1902	15,639.00
Do	do	May 19, 1903	4,669.00
Unadilla	Mare Island, Cal	July 9, 1903	3,190.00
Villalobos	Cavite, P. I.	Dec. 17, 1902	1,290.00
Vixen	Portsmouth, N. H	July 3, 1902	8,092.00
Wasp	Norfolk, Va	Aug. 14, 1902	4,749.40
Wilmington	Amoy, China	Dec. 2, 1902	4,323.50
Wisconsin	Bremerton, Wash	Jan. 21, 1903	11,003.00
Yankee	League Island, Pa	Feb. 21, 1903	99,999.35
Yankton	Portsmouth, N. H	July 9, 1903	8,852.00
Yorktown	Amoy, China	Nov. 26, 1902	60.00

STANDARDIZATION OF FITTINGS.

The Bureau has considered the preparation and issue of standard plans of ship fittings in cooperation with private shipbuilders. Plans have been issued in accordance with the following list:

No. 45. Alternate hinges and pads for standard water-tight doors.
No. 47. Bulletin boards.
No. 48. Cooperage, part 1.
No. 49. Cooperage, part 2.
No. 50. Deck plates and indicators.
No. 51. Water-tight doors 5 by 3 feet.
No. 52. Steering stands.
No. 53. 3-inch Dresser lift pump.
No. 54. Rigging screws.
No. 55. 2½-inch Dresser lift and force pump.
No. 56. Stateroom crockery and rings.
No. 57. Type plan of life-buoy stowage.
No. 58. 3-inch Dresser lift pump and force pump.
No. 59. Water-tight vertical sliding door 4 feet 9 inches by 2 feet.
No. 60. Water-tight vertical sliding door 4 by 2 feet.
No. 61. 3½-inch pumps.
No. 62. 3-inch bulkhead lift and force pump.
No. 63. Water-tight vertical sliding door 3 feet 3 inches by 2 feet.
No. 64. Metal hose rack.
No. 65. Type plan of screw steering gear.
No. 66. Wire hawser reel.
No. 67. Square air port.
No. 68. Water-tight horizontal sliding door 5 feet by 2 feet 6 inches.
No. 69. Folding berths for petty officers and sick bay.
No. 70. Folding berths for officers' quarters.
No. 71. Type plan of stern chock.
No. 72. Type plan of boat chocks and gripes.
No. 73. Special type of 18-inch air port (fitted with standard size lens).
No. 74. Type of 18-inch air port.

In addition to these details, type plans, with specifications, have been prepared and issued for drainage, magazine flooding, fire system, fresh and salt water systems for the 16,000-ton battle ships. The Bureau has also prepared and issued a set of standard specifications for plumbing fixtures, in order that these fittings may be of a uniform type and quality, with the least practicable weight and cost consistent with reliable service. It is believed that these specifications will result in considerable economy of cost and weight.

After most thorough investigation in consultation with different private shipbuilders the Bureau has issued a standard sheet of instructions in regard to the sizes, fastenings, and method of fitting pipe flanges for all drainage work on board naval vessels. Great diversity of practice obtained in this matter and resulted in a considerable increase in the cost of overhauling and repairs to vessels in the service, and great difficulty in maintaining a stock of the fittings and materials necessary for purposes of maintenance in the navy-yards and on board ship.

The Bureau has issued revised general specifications for electric appliances under its cognizance on shipboard, and also for electric conductors for use in its work in navy-yards.

EXPERIMENTAL WORK.

The experimental model basin has continued in successful operation during the year, experiments of one kind or another having been made with nearly 150 models of all kinds during that time, including 5 for private persons. The experimental model basin has now become indispensable to the Bureau in connection with work upon new designs, particularly those involving novel features. The final forms for the 1,000-ton gunboats and the 13,000-ton battle ships authorized during the last session of Congress were adopted only after a number of experiments with the view of obtaining the most desirable form in each case. The results in the case of the 13,000-ton battle ships illustrate clearly the value of the experimental model basin. As the result of a succession of experiments with the final form adopted for these vessels a speed of 17 knots can be confidently anticipated with but 10,000 indicated horsepower. There are 5 completed battle ships in the Navy of 11,500 tons displacement and but 7 feet shorter than the *Idaho*, or 13,000-ton class, which averaged on trial almost exactly 17 knots with 12,000 indicated horsepower. The new ships, although of 1,500 tons, or 13 per cent, greater displacement, will attain this speed with 2,000, or 16⅔ per cent, less horsepower, and if they reach on trial the same efficiency of propulsion as obtained by the best of the 11,500-ton ships will appreciably exceed the 17-knot speed.

Progressive speed trials of completed vessels are the essential complement of the investigations of the model basin in order to determine the efficiency of propulsion. Up to last year of the large number of vessels built for the Navy in the last twenty years only the *Chicago*, *Boston*, and *Yorktown* had thorough progressive trials in commission. At the urgent request of the Bureau, and with the cordial cooperation of the Bureau of Steam Engineering, such trials have been made of the battle ships *Alabama*, *Massachusetts*, and *Kearsarge*, and in the past year progressive trials for speed and coal endurance have been made of the destroyer *Truxtun*.

The Bureau will continue to urge that all type ships be subjected to progressive trials, as the scarcity of reliable data of this kind has been a serious handicap to successful naval design.

During the last few years the ventilation of naval vessels has been obtained almost entirely by the use of electrically actuated fans. These have many advantages in practical operation over steam-driven fans. There was great lack of information, however, as to the real efficiency and delivery of the fans hitherto installed. Using apparatus especially designed for this purpose the Bureau has caused comprehensive experiments to be made at the Washington Navy-Yard during the last year upon the efficiency of fans of various commercial makes, and has supplemented these by special experiments upon ventilation systems installed upon the *Missouri*. The amount of power used for ventilation is considerable on a large ship, and it is desirable that it should be expended with the greatest possible efficiency. The Bureau expects to utilize the results obtained by the experiments above referred to in laying down conditions and requirements for the ventilation fans to be used on board vessels of war which will enable the manufacturers of fans to supply in the future for use aboard ship fans distinctly superior to those used in the past.

On all of the recent naval vessels of importance a number of watertight doors and hatches, some or all of which are left open under ordinary conditions, but must, for the safety of the ship, be closed promptly in case of accident, have been fitted with mechanical appliances for controlling them and closing them from a distance as well as on the spot. Pneumatic appliances have been fitted upon nearly all doors in the service, but the Bureau has been anxious for some time to extend the use of electricity to these fittings, provided reliable electrical apparatus could be developed. With this end in view it had tests made during the year at the Washington Navy-Yard of several types of electrically operated water-tight doors with distant control, the doors and operating devices being tested for endurance as well as watertightness. As a result of the experiments the Bureau directed a number of changes and improvements to be made in the type of electrically operated vertical sliding door submitted by the subcontractors who will supply such doors for a number of ships under construction. It is believed that with the improvements required by the Bureau this type of door will show itself distinctly superior in service to the pneumatic door hitherto supplied. Types of electrically operated horizontal sliding door and hatches have not yet been approved, but experiments are still in progress and it is expected that satisfactory fittings will be determined upon in the near future.

The Bureau has investigated existing types of electrical steering gear with a view to its use upon naval vessels, and has designed and purchased the material necessary for the installation of electrical steering apparatus on the monitor *Nevada*. The results of the trials of this steering gear when completed will, it is hoped, furnish ground for its further extension in the service. The importance of the absolute reliability of the steering gear of vessels renders it necessary, in the opinion of the Bureau, to proceed in this matter with extreme caution.

By authority of the Department the Bureau has undertaken to obtain exact information upon a subject which has always been more or less agitated in the service, viz, the advantages and disadvantages of the

lug rig for naval cutters and whaleboats, as compared with the sliding gunter rig, which is now in use on the standard navy boats. Competitive trials have been made at the navy-yard, Portsmouth, N. H., the navy-yard, Norfolk, and are still in progress at the Naval Academy, so far without decisive results. The Bureau considers it important before making a change in the rig of boats to obtain such information as will enable the change to be made in a definite and successful manner without plunging it into expensive experimentation by partial changes of type.

IMPROVEMENTS IN NAVY-YARDS.

The improvements in navy-yard plants made during the past year are described by the statements of the various naval constructors in the following pages of the report, with their individual recommendations as to desirable improvements. The Bureau's daily work of construction and repair in navy-yards has been more expensive and less expeditious than is desirable, by the very slow progress which has been made in the completion of new buildings authorized in the various yards. Considerable expenditures have been made upon these improvements, as necessitated by the completion of new buildings, but this work could be more economically carried on and be of a more uniform and satisfactory character if the buildings were more promptly completed.

DRY DOCKS.

The Bureau's work continues to be embarrassed by lack of sufficient dry docks of capacity suited to the dimensions of battle ships and first-class armored cruisers. On the Atlantic coast there is but one dry dock (that numbered 3 at the navy-yard, Brooklyn, N. Y.) which is of sufficient size to take all the vessels at their regular cruising draft. Dry dock No. 2 at that yard takes the majority of battle ships now afloat. This condition of affairs makes it impossible to efficiently distribute the docking and current repairs of the fleet among the different navy-yards so as to carry on the work expeditiously and economically. It must be expected that, as has recently happened, repairs of considerable duration must be carried on with the vessel in dry dock, and under these conditions circumstances might easily arise where the present lack of docks would seriously embarrass the efficiency of the fleet. The Bureau is of the opinion that the completion of the dry docks now building at the various navy-yards is a matter of great urgency.

BOATS.

The number of small boats at present in use and in store for the Navy is approximately 3,500. During the past year 363 boats have been ordered built and 336 new boats have been completed.

The Bureau has, in cooperation with the Bureau of Steam Engineering, prepared and issued a new design for a 50-foot steam cutter to be carried on the larger battle ships and armored cruisers. The first one of these boats is now 70 per cent completed at the navy-yard, Portsmouth, N. H., and it is hoped will be ready for trial this season.

In cooperation with the Bureau of Steam Engineering, and by authority of the Department, the Bureau has purchased in England,

for trial in connection with this design, a 56-foot vidette boat, built by White, of Cowes, of the type usually carried on English battle ships. This boat has been received at the navy-yard, New York, and is now under trial.

The Bureau has endeavored to reduce the cost of boats built in the navy-yards, and considerable success has been achieved in this direction at the large yards. Some years ago the average cost of boats built in the yards was compiled for the book of standard boats. During the past year the average cost of boats built at the Boston Navy-Yard was 30 per cent less; at the Norfolk Navy-Yard, 27.4 per cent less; at the Portsmouth Navy-Yard, 24 per cent less; at the New York and League Island navy-yards, 21 per cent less, and at the Mare Island Navy-Yard, 3 per cent less than the estimated cost in the book of standard boats. At the small yards, where comparatively little boat work is done, and at the Puget Sound Navy-Yard, the cost of boats is above the average estimate appearing in the standard book, as follows: At Port Royal, 3 per cent; at Puget Sound, 13 per cent, and at Pensacola, 23.4 per cent.

The list of boats under construction, or which were completed during the current fiscal year, is found on page 869 of this report.

CORPS OF NAVAL CONSTRUCTORS.

The corps of naval constructors at the present time consists of 22 naval constructors and 27 assistant naval constructors. Of the latter, 12 are under instruction at the Massachusetts Institute of Technology, Boston, Mass., 3 graduating in 1904 and the remainder in 1905. Of the naval constructors, 2 are on sick leave, and 2 retired naval constructors are assigned to active duty. The total number in the corps, on the active list at present, is 49. In the naval appropriation act approved March 3, 1903, the total number allowed in the corps was increased from 46 to 75, by increments of not more than 5 assistant constructors yearly. The number allowed at the present time is 51; there therefore exists two vacancies for the current calendar year. Notwithstanding the earnest and repeated recommendations of this Bureau, with regard to the urgent need for filling these vacancies, the Department has felt unable to assign additional midshipmen.

The total increase to 75 allowed by Congress was based upon the present actual needs of the service, and the only reasons for the limitation of the increase to 5 each year was to avoid the excessive congestion of the list by the accumulation of a very large number of officers of nearly the same age (an unfortunate condition already existing to an undesirable extent), and also to avoid withdrawing at one time a large percentage of midshipmen from the other branches of the service.

The need for filling the two vacancies now existing is urgent, both from the necessities of the work on hand and to provide continuity of instruction in classes.

STEEL INSPECTION.

The total quantity of ship steel inspected by the Bureau and the amount passed and shipped for incorporation into naval vessels shows an increase over the figures of the preceding year. The total quantity submitted

for inspection under the Bureau's requirements during the fiscal year ending June 30, 1903, was 250,720,754 pounds, as compared with a total of about 212,242,000 pounds for the fiscal year ended June 30, 1902. The distribution of this material among the several districts into which the inspection work is divided, as well as the quantities rejected for various causes, percentages of rejection, etc., are given in the tables below:

Summary of work performed by inspectors under the Bureau of Construction and Repair for the eastern and western districts during the fiscal year ending June 30, 1903.

	Eastern district.	Western district.	Total.
Total amount of steel rolled and inspected ..... pounds..	27,716,308	223,004,446	250,720,754
Amount rejected for physical tests ..... do....	1,974,039	10,638,588	12,612,627
Percentage rejected for physical tests	7.1	4.7	5
Amount rejected for chemical defects ..... pounds..	688,160	1,724,122	2,412,282
Precentage rejected for chemical defects	2.4	.8	.96
Amount rejected for surface defects ..... pounds..	1,155,328	50,123,880	51,279,208
Percentage rejected for surface defects	4.1	22.5	20.4
Amount rejected, all causes ..... pounds..	3,817,527	62,486,590	66,304,117
Percentage rejected, all causes	13.6	28	26.4
Scrap ..... pounds..	----------	35,360,039	35,360,039
Amount of finished material shipped ..... do....	23,898,781	125,157,817	149,056,598

The following table shows the distribution of the material among the vessels building:

Detailed statement of shipments for each vessel from the eastern and western districts for the fiscal year ending June 30, 1903.

Name of vessel, etc.	Eastern district.	Western district.	Total.
	Pounds.	*Pounds.*	*Pounds.*
Arkansas	----------	250	250
California	160,725	7,474,105	7,634,830
Charleston	709,223	4,847,683	5,556,906
Cleveland	51,898	----------	51,898
Colorado	738,780	2,674,472	3,413,252
Chattanooga	32,208	----------	32,208
Connecticut	243,885	10,434,548	10,678,433
Denver	30,181	5,221	35,402
Florida	----------	8,320	8,320
Galveston	16,500	27,745	44,245
Georgia	487,410	6,125,660	6,613,070
Louisiana	323,540	9,908,409	10,231,949
Maine	75,016	20,888	95,904
Maryland	352,749	5,132,563	5,485,312
Milwaukee	----------	7,224,060	7,224,060
Missouri	141,660	385,325	526,985
New Jersey	720,845	5,389,273	6,110,118
Nebraska	138,966	10,492,574	10,631,540
Ohio	137,186	129,849	267,035
Pennsylvania	785,795	2,664,378	3,450,173
Rhode Island	716,944	5,519,070	6,236,014
South Dakota	502,008	7,648,861	8,150,869
St. Louis	374,989	4,874,139	5,249,128
Tacoma	----------	80,198	80,198
Tennessee	32,675	2,221,042	2,253,717
Virginia	700,605	9,932,163	10,632,768
West Virginia	730,346	5,001,371	5,731,717
Washington	63,770	1,980,153	2,043,923
Monitors	8,145	----------	8,145
Navy-yard contracts and requisitions	13,541,293	5,369,890	18,911,183
Miscellaneous	2,081,489	9,585,607	11,667,046
Total	23,898,781	125,157,817	149,056,598

Orders for material requiring inspection were distributed among the following manufacturers:

EASTERN DISTRICT.

American Iron and Steel Manufacturing Company	Reading, Pa.
American Iron and Steel Manufacturing Company	Lebanon, Pa.
American Steel Casting Company	Thurlow, Pa.
Atha (Benj.) & Illingworth Company	Newark, N. J.
Brylgon Steel Foundry Company	Reading, Pa.
Central Iron and Steel Company	Harrisburg, Pa.
Diamond State Steel Company	Wilmington, Del.
Diamond Drill and Machine Company	Birdsboro, Pa.
Ferro Carbon Casting Company	Frankford, Pa.
Hoopes & Townsend Company	Philadelphia, Pa.
Macpherson & Willard Company	Bordentown, N. J.
Midvale Steel Company	Nicetown, Pa.
McCullough Iron Company	Wilmington, Del.
Passaic Rolling Mill Company	Paterson, N. J.
Philadelphia Forge Company	Tacony, Pa.
Penn Iron Company	Lancaster, Pa.
Pennsylvania Steel Company	Steelton, Pa.
Phœnix Iron Company	Phœnixville, Pa.
Penn Steel Casting and Machine Company	Chester, Pa.
Reeves (Paul S.) & Son	Philadelphia, Pa.
Seaboard Steel Casting Company	Chester, Pa.
United States Steel Company	West Everett, Mass.
Worth Brothers Company	Coatesville, Pa.
Wood (J.) Brothers Company	Conshohocken, Pa.

WESTERN DISTRICT.

American Steel Hoop Company (Clark Mills)	Pittsburg, Pa.
American Steel Hoop Company (Painter's Mills)	Pittsburg, Pa.
American Steel Hoop Company (Valley Mills)	Youngstown, Ohio.
American Steel Sheet Company	Wellsville, Ohio.
Carbon Steel Company	Pittsburg, Pa.
Champion Rivet Company	Cleveland, Ohio.
Clairton Steel Company	Clairton, Pa.
Cleveland City Forge and Iron Company	Cleveland, Ohio.
Duquesne Steel Works (Carnegie Steel Company)	Duquesne, Pa.
Fort Pitt Forge Company	Pittsburg, Pa.
Homestead Steel Works (Carnegie Steel Company)	Munhall, Pa.
Inland Steel Company	Indiana Harbor, Ill.
Jones & Laughlins	Pittsburg, Pa.
Monongahela Iron and Steel Company	Hays Station, Pa.
Newark Iron and Steel Company	Newark, Ohio.
Niles Iron and Steel Company	Cleveland, Ohio.
National Tube Company	McKeesport, Pa.
National Tube Company	Ellwood City, Pa.
Otis Steel Company	Cleveland, Ohio.
Park Steel Company	Pittsburg, Pa.
Pittsburg Forge Company	Pittsburg, Pa.
Pressed Steel Car Company	Allegheny, Pa.
Union Mills (Carnegie Steel Company)	Pittsburg, Pa.
Union Steel Casting Company	Pittsburg, Pa.
Upson Nut Company	Cleveland, Ohio.

The following is a list of the officers and inspectors engaged upon the inspection of steel under this Bureau:

EASTERN DISTRICT.

Chief Carpenter P. T. Mager, U. S. Navy, inspector in charge. Headquarters, post-office building, Philadelphia, Pa.

Assistant inspectors, J. E. Rettig, James B. Fry, J. T. Callaghan, jr., F. A. Wheeler, R. P. Hodgson, Ed. A. Gage.
Copyist (clerk), T. F. Maccabe.

WESTERN DISTRICT.

Chief Carpenter E. W. Craig, U. S. Navy, inspector in charge. Headquarters, Homestead Steel Works, Munhall, Pa.
Assistant inspectors, W. B. Canfield, B. H. Brown, L. C. Martin, Charles H. Davis, W. S. Davis, J. B. Norris, I. F. DeLany, H. C. Cook, V. S. Yarnall, W. D. Clowes, J. A. O'Brien, W. T. Mohan, J. C. Wickersham, L. B. Mattis, J. K. Dugan, W. B. Petch.
Special laborers (clerks), S. T. Kinsell, Lewis R. Thompson.
Special laborer, R. C. Wallower.

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NAVY DEPARTMENT,
BUREAU OF CONSTRUCTION AND REPAIR,
Washington, D. C., February 13, 1903.

SIR: 1. Referring to the Department's first indorsement No. 15572 of the 6th instant, on a letter from the Bureau of Navigation No. 2036–1 of the 5th instant, recommending the adoption of some means to reduce the period of construction of our naval vessels, the Bureau submits the following statement:

2. The delays in the construction of United States vessels may, in general, be attributed to one or more of the following causes:

(*a*) Inadequate plans.

(*b*) Changes in the disposition of armor or armament, or in the details of the designs after the award of the contract.

(*c*) Delays in delivery of armor and ordnance.

(*d*) Delays due to Government inspection.

(*e*) Delays due to slowness of delivery of steel and other structural materials by subcontractors.

(*f*) Delays due to inadequate facilities or insufficient ability in the contractors' technical staff.

(*g*) Delays due to an inadequate supply of skilled workmen.

Taking up these subjects in the order mentioned, the Bureau desires to state as follows:

3. *Inadequate plans.*—In the past the desire of the Department to have the contracts for vessels awarded as soon as possible after their authorization by Congress has led to great haste in the preparation of the contract plans, in which many matters of importance in working up the details were left for consideration after the award of the contract. While this may have appeared at the time to hasten the completion of the vessel, experience has shown that the contrary is the case. The Bureau has taken up this question with great care, and it is believed that in the designs of the *Connecticut* and *Louisiana*, the *Tennessee* and *Washington*, and the *Dubuque* and *Paducah*, the plans have been elaborated in such manner and have been considered in such detail that the work can be prosecuted in the earlier stages with much greater rapidity than has heretofore been the case.

4. *Changes in the disposition of armor or armament, or in the details of the designs after the award of the contract.*—The preparation of inadequate plans leads more or less directly to the second cause of delay. It has not infrequently happened that elaborate changes in the

arrangements of the armor and of the battery have been made after the contracts have been signed. Indeed, the contracts have contained a clause by which such changes could be made within six months of the date of the contract without any increased compensation to the contractors. Vessels have been lengthened and batteries increased, the arrangements of the turrets and supports have been greatly changed, and other changes have been made too numerous to mention. Changes have not infrequently been due to the development of the art of naval construction during the progress of the vessel, such as the use of fireproof wood and the omission of woodwork as far as possible; the installation of elaborate systems of ammunition hoists not originally contemplated, made necessary by the increased rates of fire found feasible in the development of ordnance, which were not contemplated at the time of the design, etc. The Bureau has taken into account these matters in the recent designs above mentioned, and has anticipated as far as possible all advancements in the art up to date, and it is confidently believed that no serious changes or alterations will be necessary in the progress of construction. Delays from this cause may be greatly diminished by a refusal to adopt experimental propositions for incorporation into designs which have been properly elaborated, and changes of importance made only when it is clear that if such changes were not made the vessel would be distinctly inferior in its fighting qualities.

5. *Delays in delivery of armor and ordnance.*—These delays have constantly occurred. They have been due in the past, first, to the discovery of improved methods of manufacture of armor, such as the Harvey process, which greatly delayed our first battle ships of the *Indiana* class; second, by the Krupp improvement on the Harvey process; third, by the controversies which existed as to the price of armor, and the refusal of Congress to authorize the building of vessels until the contractors for armor had acceded to certain demands as to the maximum price. The latter has been one of the principal causes of delay in the *Maine*, *Missouri*, and *Ohio*, of which the first only has been commissioned, nineteen months after the expiration of the contract date of completion. It is to be hoped that the productive capacity of the armor makers will in future be sufficient to supply the requirements for ships now under contract. The delivery of the ordnance has been a constant source of delay, and few, if any, of the vessels which have been building by the Navy have had their batteries completed in good time, even allowing for the delays which have occurred from other causes. The delivery of ordnance is likely to become a very serious matter on the vessels now building. With seven battle ships, eight armored cruisers, and three protected cruisers of large size building, a very large quantity of ordnance supplies will be necessary within a short interval of time.

6. *Delays due to Government inspection.*—It is believed that the inspection given to United States vessels of war is more complete than that given by any other nation, and this extends not only to the vessels themselves, but to the materials used. Such inspection, including criticism of plans, etc., necessarily tends to a slower construction than when the contractor is given a free hand, but, in the opinion of the Bureau, it is not desirable to relax the rigidity of such inspection. Arrangements have been made, however, by which superintending constructors are required to make monthly reports of the causes of delay when such exist, and the Bureau calls the attention of the

Department from time to time to such matters, so that both the inspecting officers and the contractors are kept alive to the necessity for avoiding delay.

7. *Delays due to slowness of delivery of steel and other structural materials by subcontractors.*—These delays have assumed great importance on the vessels now under contract, and on all those for which the contracts date from the beginning of 1898. In that year the phenomenal rise in the demand for steel occurred and has continued without interruption since. The demands for shipbuilding purposes are comparatively subsidiary to the great demand for structural material throughout the country, and, as a natural result of their comparative insignificance, do not receive as much attention from steel manufacturers as deliveries for other work, which it is thought is profitable by reason of greater tonnage and cheaper quality.

8. For vessels recently begun or to be begun in the near future this source of delay is believed to be the one serious obstacle affecting the hull construction of vessels by the shipbuilders or by the Government. For reasons not known to this Bureau, and not entirely clear, although the steel manufacturers of prominence have taken and are taking contracts for ship's steel on the Government specifications in large quantities, they do not devote, even if they have available, a sufficient plant to manufacture this material with sufficient rapidity to furnish the shipbuilders a continuous supply equal to the amount which they should consume in the regular process of building ships to comply with the contract periods now being assigned. In other words, the capacity of the steel manufacturers is inadequate to furnish a sufficient supply to the shipbuilders, even if the steel mills were willing in the production of the material to follow closely the order in which it is required by the shipbuilders to suit the construction of ships. As a matter of fact, the steel makers pay but little or no attention to the requests of shipbuilders for the delivery of the keel plates, the framing, the bottom plating, plating of decks and bulkheads, in the order in which they are required in the construction of the vessel, but usually attempt to manufacture the material in a method most economical to themselves, resulting in the grouping of materials of similar dimensions without regard to the shipbuilders' interests.

This neglect on the part of the steel manufacturers is now a source of constant complaint on the part of the shipbuilders and of the Government in its own contracts, and has repeatedly been brought to the attention of the steel manufacturers without securing permanent relief. It is necessary for all large shipbuilding firms to keep at the steel works men whose sole employment is to try to secure the material in the proper order. The delays and disorganization caused to the shipyards, and the very considerable financial losses caused to them by these delays are adversely affecting the efficiency of naval vessels. In the case of merchant vessels, many shipbuilders have recently resorted to placing orders for structural steel in Scotland and Belgium, by which means they secure the material in the order required within a definite time—far less than it can be obtained in this country. This resource is not open to builders of Government vessels, as they are required by law to be built wholly of materials of domestic manufacture.

9. It may be well to discuss here, incidentally, the effect of allowing a bonus to ship contractors, as suggested by the Bureau of Navigation. It is clear from the above statement of one of the principal organic causes of delay in shipbuilding, that no bonus would be effective in

reducing the time unless it were sufficient in amount and paid to the shipbuilder in such a manner as would enable him to pay the steel maker a much greater price for the steel so that it would be given priority over all other orders, and would be produced and delivered in the order of the building of the ship. It can readily be seen that the period of construction of any particular vessel might be hastened, but it would be impossible to hasten the construction of all vessels building by such means, because the capacity of the steel manufacturers being limited, and working to their limit at the present time, the paying of a higher price on the part of everyone concerned would simply be a waste of money and produce no better results than at present. This would be more clearly and particularly the case for nickel steel, in which the capacity for production is now below the needs of the Navy, and of which the Government is practically the only large consumer.

10. *Delays due to inadequate facilities or insufficient ability in the contractors' technical staff.*—In the past the Government has awarded contracts to shipbuilding yards that were possessed of totally inadequate facilities for the building of the vessels contracted for. This has been, in a measure, due to the necessity under the law of awarding the contract to the lowest responsible bidder and in part to the policy of awarding contracts to the various shipyards throughout the country under which they could develop their plants and facilities for doing Government work in the future. This was notably the case in the awards of the small cruisers, destroyers, and torpedo boats made in 1898. It unfortunately happened that the contractors did not always provide the facilities which they lacked, and it further happened that owing to the amount of work ordered, not only by the Government but by private parties, in 1898 and 1899, the demand for persons equipped with competent technical knowledge greatly exceeded the supply, a condition which is still felt, not only by private establishments, but in the Government's own service. As a result, the stronger concerns have been able to outbid the weaker and smaller concerns, as they were unable to pay the salaries demanded. This was particularly unfortunate in the case of the destroyers and torpedo boats above mentioned, which, in their construction, involved the highest quality of designing talent. Such delays as have occurred will diminish with the development of competent technical staffs in the various shipyards and with the award of contracts only to people who can demonstrate that they have, at the time of the contract, adequate facilities, adequate capital, and a competent technical staff. The question thus becomes largely one of policy of the Government in awarding contracts and in restricting awards to the concerns having the best facilities.

11. *Delays due to an inadequate supply of skilled workmen.*—The withdrawal from the merchant service of a large part of the United States registered tonnage for war service and for transports in 1898, coupled with the authorization by Congress in 1898 and 1899 of war vessels whose displacement was about 65 per cent of all vessels of the new Navy theretofore authorized, created a boom in shipbuilding such as had not been known since the civil war. The supply of trained workmen was totally inadequate to the greatly increased demand. With the competition of shipbuilders for workmen, wages rose steadily without producing additional supplies of men. The demand for merchant vessels has recently fallen off greatly, owing to the probable

failure of the subsidy bill, so that this cause of delay is likely to diminish somewhat in the future.

12. In the above the Bureau has considered the causes of delay, and has also mentioned in part the steps which it has taken, in so far as work under its cognizance is concerned, to diminish such delays. Notwithstanding all the difficulties which have been mentioned and the state of the art in this country, the Bureau is of the opinion that the period actually elapsed from the time orders are given to build a vessel until the time that ship is ready for commission in actual service compares not unfavorably with the best results obtained in foreign countries, namely, England and Germany. The greater apparent speed of ship construction in England is due to the fact that time is usually reckoned from the time the keel is laid until delivery of a contract-built ship. Such vessels are delivered in a very incomplete condition, and are afterwards subjected to their trials and supplied with their guns and mountings and a large amount of their equipage at the Government dock yards. The actual time from the date of contract to the date of first commissioning of the English battle ship *Russell* is four years and one month, and that is the time which should be compared with the period of construction usually given for our vessels, which averages for the ten battle ships already completed four years and eight months. In the German navy the battle ship *Wittelsbach*, the keel of which was laid September 20, 1899, and which was probably ordered several months previous to that date, has not yet been placed in service. She recently ran aground while on her trial and is understood not to be ready for regular service yet.

13. In this connection the Bureau desires to point out that the desire of the Government in the past for the early delivery of vessels, and inexperience in the time required for the completion of the largest types, has led to the fixing of an inadequate contract time for their completion. Thus, the earliest battle ships of the *Indiana* class had the contract time for completion fixed at thirty-six months, which was followed for all the battle ships and larger cruisers up to 1898, when the desire for rapid construction, following the Spanish-American war, led to the cutting down of the contract time for the *Maine* class to thirty-two months; notwithstanding the fact that no battle ship for the Government had been completed within a period of less than four years from the date of the contract. In the case of the *Maine*, the only vessel of the class yet completed, the elapsed time from date of contract to date of commissioning is four years and three months. The proposition, therefore, of the Bureau of Navigation that a bonus should be offered to the contractors has virtually already been tried, in that a contract time of completion which was very short has been fixed upon, together with penalties for failure to complete in the contract time. The result of this has been that the contractors have practically always been relieved of penalties owing to failures of the Government to deliver armor or ordnance, or to the inability of the contractors to get structural materials, or to changes made which delayed the work, and, indeed, has resulted in suits against the Government for large sums, based upon the claim that the contractors would have been able to complete the ship in the contract time specified had not the Government caused delay by the nondelivery of armor, etc.

14. It therefore becomes a matter of careful consideration what should be the contract period for completion fixed in the contract. In the opinion of this Bureau such time should be adequate for construc-

tion, and therefore should be such as to enable the Government to impose the penalties called for by the contract in case of delay by the contractors, provided it had itself fulfilled the requirements as to delivery of armor and ordnance necessary to complete the work. The policy of offering a bonus for completion at an earlier date than the time called for by the contract would be not unlikely to involve the Government in suits for the payment of such bonuses without the vessel being hastened in delivery in case there should be any delay on the part of the Government or failure to deliver at an early date the armor, ordnance, and other things which the Government has to furnish in order to complete the contract.

15. In conclusion, the Bureau believes that as far as the delays on the part of the Government are concerned this Bureau has taken all such steps as are possible for work under its cognizance to avoid such delays in the future, and also believes that in general contractors for Government vessels have used and are using the very best efforts within their several means and abilities to complete their contracts in the shortest practicable time, an object which is most obviously to their own advantage in reducing the final cost.

Very respectfully,

F. T. BOWLES,
Chief Constructor U. S. Navy, Chief of Bureau.

The SECRETARY OF THE NAVY.

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REPORT OF THE CHIEF OF THE BUREAU OF STEAM ENGINEERING.

DEPARTMENT OF THE NAVY,
BUREAU OF STEAM ENGINEERING,
Washington, D. C., October 1, 1903.

SIR: In obedience to your order of July 11, 1903, the following annual report of the operations of this Bureau during the fiscal year ending June 30, 1903, together with the estimates of the Bureau for the fiscal year ending June 30, 1905, is respectfully submitted.

Appropriation, steam machinery, 1902–3.

Amount appropriated for fiscal year ending June 30, 1903, act approved July 1, 1902		$3,405,000.00
Labor in navy-yards and stations in repair of steam machinery, boilers, etc., of naval vessels fitting for sea service, preservation and repair of tools, handling and preservation of materials, stores, etc.	$1,713,790.24	
Purchase of materials, stores, machine tools, freight, and incidental expenses	1,318,540.09	
Payments for repairs, materials, freight, and incidental expenses for ships on foreign stations	284,242.81	
Total	3,316,573.14	
Less refunds by transfers in adjustment of appropriations and deposits by paymasters in transferring accounts	100,396.40	
Total expenditures		3,216,176.74
Balance in Treasury September 1, a portion being required to pay outstanding obligations		188,823.26

PORTSMOUTH NAVY-YARD.

Although it has been reported year after year that the facilities for Steam Engineering work at this yard are totally inadequate, causing delay in the repair and fitting out of vessels, appropriations have been made only for rebuilding the machine shop, for an administration building, and for a power house and chimney, notwithstanding the iron foundry has been condemned by survey, the blacksmith shop is old, dilapidated, and badly located, the boiler shop is a mere shell of corrugated iron with a rotten wooden frame, the coppersmith shop is too small, and the pattern shop is located on the fourth floor of another building.

Every Steam Engineering building in this yard was built before such appliances as traveling cranes were invented and are dark, badly arranged, and incapable of improvement. Some of them are already dangerously overloaded and though additional tools are required there is no floor space for them.

Request has been made on the Bureau of Yards and Docks to include estimated cost of an entire set of buildings for this Bureau, according to plan submitted in its estimates, and it is hoped that their construction will be authorized.

Not only new buildings, but new tools as well, are required for the proper equipment of this yard, and though an appropriation has been asked year after year, none has been granted, though at least $150,000 will be required for the purpose.

During the year a steam hammer, bolt-cutting machine, shaper, and four 28-inch lathes were obtained and set up; part of a large radial drill was received and will be erected when delivery is completed.

Repairs, some of them amounting to practically rebuilding, have been made to the machinery and boilers of the following vessels, or stores and outfits have been prepared for them: *Detroit*, *Eagle*, *Essex*, *Leonidas*, *Nevada*, *Nezinscott*, *Raleigh*, *Reina Mercedes*, *Sioux*, *Sterling*, *Vixen*, and *Yankton*.

Repairs have also been made to the steam cutters in use at the yard. Thirty-four steam-cutter engines, with spare parts, have been completed during the year and a number of them fitted in cutters. Considerable work has also been done for the other departments of the yard. The expenditure during the year amounted to $245,878.48.

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LIQUID FUEL TESTS.

During the past year there was completed the extended series of tests projected by the Bureau for determining the value of liquid fuel for naval purposes. The fact that these tests were made under a boiler capable of being forced to 2,000 horsepower and that an extended series of experiments had been previously made under the same boiler with coal as a fuel made it possible to secure comparative results as to the relative economic and practical values of the two combustibles.

The Bureau hopes within a few months to have the complete report of the board ready for distribution, although the labor involved in the preparation of the report is very great. By reason of the inadequate complement of officers available at the Bureau for general duty, the members of the liquid fuel board have been unable to give all

their time to the preparation of the final report, and as a consequence there has been resulting delay in its preparation.

The Bureau would call attention to the fact that through the liberality of individuals, combined with the appropriation available for conducting experimental work, that probably over $200,000 was expended in carrying on these tests.

The report of the liquid fuel board when published will be of inestimable benefit to the manufacturing, maritime, and naval world, and will show the far-reaching benefit of careful, conscientious, and extended experimental investigation.

The demand for the preliminary report of the liquid fuel board and the extended and favorable notice of the work of the Bureau in the investigation of the liquid fuel problem clearly shows how appreciative the country at large is of scientific investigation conducted under Government auspices.

Tests were not only made with the Texas and California products, but practically every form of burner illustrating a distinct design or principle was experimented with.

It is only by reason of the fact that there were urgent demands for the services of the members of the liquid fuel board, as well as for the service of the torpedo boat *Rodgers*, that had been kindly placed at the disposal of the Bureau by the Bureau of Navigation, that the tests were discontinued.

Neither in extent nor in character have these tests been equaled either at home or abroad, and the Bureau feels assured that when the results of the experiments are made known that the necessity and advisability of conducting extended investigation in other directions will be made manifest.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter.			Stroke.	Number and type of boilers.	Total grate surface.
				H. P.	I. P.	L. P.			
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Abarenda	Collier	4,670	Vertical, triple expansion.	28	38	62	42	2 single-ended cylindrical.	106
Adams	Cruiser, training ship.	1,375	Horizontal, compound, single screw.	34	-----	51	42	6 single-ended cylindrical.	192
Adder	Submarine torpedo boat.	122.5	Otto gasoline engine[c]; electric motor.[d]	-----	-----	-----	-----	-----	-----
Ajax	Collier	7,500	Vertical, triple expansion, single screw.	26.5	44	71	60	3 single-ended cylindrical; 1 donkey.	157
Alabama	First-class battle ship.	11,565	Vertical, triple expansion, 2 screws.	33½	51	78	48	8 single-ended cylindrical.	697.6
Albany	Protected cruiser.	3,769	-----do-----	31	40	70	30	4 double-ended cylindrical.	468
Alert	Cruiser	1,020	Horizontal, compound, single screw.	28½	-----	42½	42	2 Babcock & Wilcox.	96
Alexander	Collier	6,181	Vertical, triple expansion.	24½	42	64	39	2 cylindrical and 1 donkey cylindrical.	105
Amphitrite	Double-turret monitor.	3,990	Inclined, compound, 2 screws.	32	-----	48	42	6 single-ended cylindrical.	378
Annapolis	Composite gunboat.	1,060	Vertical, triple expansion, single screw.	15	24½	40	28	2 Babcock & Wilcox.	98
Arethusa	Tank steamer.	6,200	-----do-----	25	40	66	45	2 horizontal double-ended, 1 auxiliary single-ended.	139
Arkansas	Monitor	3,235	Vertical, triple expansion, 2 screws.	17	26½	40	24	4 Thornycroft	198
Atlanta	Protected cruiser.	3,000	Horizontal, triple expansion, single screw.	34	50½	74½	42	4 Babcock & Wilcox; 2 cylindrical.	303
Bagley	Torpedo boat.	167	Vertical, triple expansion, 2 screws.	17.22	24.78	37.37	21	2 Normand	118
Bailey	-----do-----	235	-----do-----	20	30½	32[b]	18	4 Seabury	236
Bainbridge	Torpedo-boat destroyer.	420	-----do-----	20½	32	38[b]	22	4 Thornycroft	315
Baltimore	Protected cruiser.	4,413	Horizontal, triple expansion, 2 screws.	42	60	94	42	4 double-ended cylindrical.	656
Bancroft	Gunboat	839	Vertical, triple expansion, 2 screws.	13½	21	31	20	2 cylindrical straight-way, fire tubular.	87.7
Barney	Torpedo boat.	167	-----do-----	17.22	24.78	37.37	21	2 Normand	118
Barry	Torpedo-boat destroyer.	420	-----do-----	20½	32	38[b]	22	4 Thornycroft	315
Bennington	Gunboat	1,710	Horizontal, triple expansion, 2 screws.	22	31	50	30	4 cylindrical straight-way, fire tubular.	220
Biddle	Torpedo boat.	167	Vertical, triple expansion, 2 screws.	17.22	24.78	37.37	21	2 Normand	118
Blakely	-----do-----	165	-----do-----	14	22	25½[b]	18	3 Normand	150

[a] Estimated.

[b] Two low-pressure cylinders.

States Naval Vessels.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
4,000	[a] 9.5	1,050	713	6,990	.....	Good	Out of commission at Norfolk, Va.
4,946.4	9.8	800	134	2,200	.....	....do	Training service.
.....	{ [c] 8.732 / [d] 7.08 }	70	[e] 850	.....	.....	....do	Torpedo Station, Newport, R. I.
.....	[a] 12	.....	450	.....	.....	....do	Collier service.
21,692	17.013	11,366	1,339	4,591	1,206.37	....do	North Atlantic Fleet, Battle-Ship Squadron.
13,156	20.52	[a] 7,500	747	4,375	684.92	....do	En route to Asiatic Station.
4,250	10	560	217	3,742	.....	....do	Training service, apprentices.
.....	[a] 9	1,026	800	6,858	.....	....do	Collier service.
8,800	12	1,600	245	1,300	.....	....do	Special service.
3,620	13.17	1,227	324	5,328	100.82	....do	Asiatic Fleet.
.....	[a] 10	.....	620	6,400	.....	....do	Collier service.
9,370	12.71	1,829.6	340	.....	256.25	....do	North Atlantic Fleet Coast Squadron.
10,824	[a] 15¼	[a] 3,500	569	3,594	[a] 539	....do	North Atlantic Fleet, Caribbean Squadron.
5,552	29.15	[a] 3,920	47	.....	.....	....do	Reserve Torpedo Flotilla.
13,230	30.198	[a] 5,600	90	.....	147.4	Under repairs	Navy-yard, Norfolk, Va.
17,768	28.45	[a] 8,000	180	.....	208.8	Good	First Torpedo Flotilla.
16,678	19.5	10,064	1,100	5,300	827.5	....do	Unassigned, navy-yard, N. Y.
2,686	14.37	1,213	139	2,900	104.73	....do	Station ship, San Juan, P. R.
5,552	29.04	[a] 3,920	47	.....	[a] 80	....do	Reserve Torpedo Flotilla
17,768	28.12	[a] 8,000	139	.....	208.85	....do	First Torpedo Flotilla.
8,210	17.5	3,392	370	3,336	282.65	....do	Pacific Squadron.
5,552	26.57	[a] 3,910	47	.....	.....	....do	Reserve Torpedo Flotilla.
7,575	[a] 24	3,000	70	.....	[a] 80	99.5 per cent completed.	Geo. Lawley & Son, Boston, Mass.

[c] Surface. [d] Submerged. [e] Gallons gasoline.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter.			Stroke.	Number and type of boilers.	Total grate surface.
				H. P.	I. P.	L. P.			
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Boston	Protected cruiser.	3,035	Horizontal, 3 cylinder, compound, single screw.	54	-----	74 [b]	42	8 single-ended cylindrical.	382
Brooklyn	Armored cruiser.	9,215	4 vertical triple expansion, 2 screws.	32	47	72	42	5 double ended, and 2 single-ended cylindrical.	1,016.2
Brutus	Collier	[a] 6,000	Vertical, triple expansion, 1 screw.	24	40	64	42	2 cylindrical single-ended return tubular; 1 auxiliary, vertical, tubular.	123.4
Buffalo	Converted cruiser.	6,888	Vertical, triple expansion.	32	52	84	54	3 double-ended return fire, tubular	409½
Cæsar	Collier	5,016	Vertical, triple expansion, 1 screw.	22½	37	61	42	2 cylindrical; 1 donkey.	-----
California	Armored cruiser.	13,680	Vertical, 4 cylinder, triple expansion, 2 screws.	38½	63½	74 [b]	48	16 Babcock & Wilcox.	1,600
Canonicus	Single-turret monitor.	2,100	Horizontal, vibrating lever, half trunk (obsolete).	48	-----	48	44	----- -----	-----
Castine	Gunboat	1,177	Vertical, triple expansion, 2 screws.	15¾	22½	35	24	2 marine locomotive.	120
Celtic	Supply ship	6,428	Vertical, triple expansion.	26½	44	72	48	2 double-ended Scotch; 1 donkey.	200
Charleston	Protected cruiser.	9,700	Vertical, triple expansion, 2 screws.	36	59.5	69 [b]	45	12 Babcock & Wilcox.	1,400
Chattanooga	Cruiser	3,100	----do	18	29	35½ [b]	30	6 Babcock & Wilcox.	300
Chauncey	Torpedo-boat destroyer.	420	----do	20½	32	38 [b]	22	4 Thornycroft	315
Chicago	Protected cruiser.	5,000	Horizontal, triple expansion, 2 screws.	33½	50½	76	40	6 Babcock & Wilcox and 4 single-ended cylindrical.	633.3
Cincinnati	----do	3,213	Vertical, triple expansion, 2 screws.	24	44.5	57 [b]	33	8 Babcock & Wilcox.	507
Cleveland	Cruiser	3,100	----do	18	29	35½ [b]	30	6 Babcock & Wilcox.	300
Colorado	Armored cruiser.	13,680	----do	38½	63½	74 [b]	48	32 Niclausse	1,600
Columbia	Protected cruiser.	7,375	Vertical, triple expansion, 3 screws.	42	59	92	42	8 double and 2 single-ended cylindrical.	1,408
Concord	Gunboat	1,710	Horizontal, triple expansion, 2 screws.	22	31	50	30	4 cylindrical straight-way fire tubular.	220
Connecticut	First-class battle ship.	16,000	Vertical, triple expansion, 2 screws.	32½	53	61 [b]	48	12 Babcock & Wilcox.	1,097
Craven	Torpedo boat	146	----do	17½	24½	37	21	2 Normand	118.7

[a] Estimated. [b] Two low-pressure cylinders

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
8,920	15.6	4,800	490	3,700	662.4	Fair; under repairs	Pacific Squadron, Mare Island navy-yard.
32,538	21.91	18,770	1,460	5,000	1,333.8	Good	Ordered as flagship, European Squadron.
4,000	a 9	a 1,200	440	3,800		do	Collier service.
13,513.5	a 14.5	a 3,600	1,338	7,800		do	Atlantic Training Squadron.
	a 10	a 1,500	817	8,526		do	Collier service.
70,944	a 22	a 23,000	2,000	5,000		38 per cent completed	Union Iron Works, San Francisco, Cal.
						Stripped for sale	Navy-yard, League Island, Pa.
4,590	16.03	2,199	250	3,000	144.84	Under repairs	do.
	a 10.5	a 1,690	760	6,000		Good	Asiatic Fleet.
64,000	a 22	a 21,000				26 per cent completed	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
13,200	a 16.5	a 4,500	800	6,925	a 405	88 per cent completed	Crescent shipyard, Elizabethport, N. J.
17,768	26.64	8,000	139	a 3,024	a 189	Good	First Torpedo Flotilla.
23,252.6	a 18	9,000	889	3,806	921.64	do	European Squadron.
19,840	19.9	8,490	577	4,560		do	Asiatic Fleet.
13,200	a 16.5	a 4,500	800	6,925	a 405	98 per cent completed	Bath Iron Works, Bath, Me.
68,308	a 22	a 23,000	2,000			61 per cent completed	Wm. Cramp & Sons Ship and Engine Building Co., Philadelphia, Pa.
45,221	22.8	18,509	1,600	6,800	1,705.9	Good	Receiving ship, navy yard, N. Y.
8,210	16.8	3,404	380	3,336	284.58	do	Pacific Squadron.
52,752	a 18	a 16,500	2,200	5,000		9 per cent completed	Navy-yard, N. Y.
5,553	30.1	a 4,200	32	c 1,498		Good	Torpedo Station, Newport, R. I.

c At 14 knots (estimated).

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter. H.P.	Cylinder diameter. I.P.	Cylinder diameter. L.P.	Stroke.	Number and type of boilers.	Total grate surface.
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Culgoa	Repair ship	6,300	Single, inverted, vertical, triple expansion.	28	$44\frac{7}{16}$	72	48	2 horizontal, return fire tubular, double-ended; 1 vertical donkey.	185
Cushing	Torpedo boat.	105	Vertical, quadruple expansion, 2 screws.	$11\frac{1}{4}$	$\left\{\begin{matrix}16\\22\frac{1}{2}\end{matrix}\right.$	[b]$22\frac{1}{2}$	15	2 Thornycroft	76.6
Dahlgren	do	146	Vertical, triple expansion, 2 screws.	$17\frac{1}{2}$	$24\frac{3}{4}$	37	21	2 Normand	118.7
Davis	do	132	do	$11\frac{7}{8}$	19	[b]$22\frac{7}{8}$	15	2 Thornycroft	88
Dale	Torpedo boat destroyer.	420	do	$20\frac{1}{2}$	32	[b]38	22	4 Thornycroft	315
Decatur	do	420	do	$20\frac{1}{2}$	32	[b]38	22	do	315
De Long	Torpedo boat.	165	do	14	22	[b]$25\frac{1}{2}$	18	3 Normand	150
Denver	Cruiser	3,100	do	18	29	[b]$35\frac{1}{2}$	30	6 Babcock & Wilcox.	300
Des Moines	do	3,100	do	18	29	[b]$35\frac{1}{2}$	30	do	300
Detroit	Unprotected cruiser.	2,089	do	$26\frac{1}{2}$	39	63	26	3 double and 2 single ended cylindrical.	367.9
Dixie	Cruiser	6,145	Vertical, triple expansion, 1 screw.	33	52	84	54	3 Scotch	594
Dolphin	Dispatch boat	1,486	Vertical, compound, 2 screws.	42		78	48	2 double and 2 single ended cylindrical.	269.6
Don Juan de Austria.	Gunboat	1,159	Compound, horizontal, back-acting.	40		70	30	4 gunboat	164
Dubuque	do	1,000	Vertical, triple expansion, 2 screws.	9	$15\frac{1}{4}$	$25\frac{1}{2}$	21	2 Babcock & Wilcox.	100
Dupont	Torpedo boat.	165	do	16	$22\frac{1}{2}$	[b]25	16	3 modified Normand.	160.6
Enterprise	Cruiser	1,375	Vertical, compound.	15		30	24	1 Scotch	
Ericsson	Torpedo boat.	120	Vertical, quadruple expansion, 2 screws	$11\frac{1}{2}$	$\left\{\begin{matrix}16\\21\frac{1}{2}\end{matrix}\right.$	30	16	2 Thornycroft.	85
Essex	Cruiser	1,375	Horizontal, compound back-acting.	34		51	42	4 Scotch single-ended.	128.4
Farragut	Torpedo boat.	273	Vertical, triple expansion, 2 screws.	20	29	[b]30	18	3 Thornycroft.	196
Fern	Tender	840	Vertical, compound.	22		36	34	1 straight shot	41
Florida	Monitor	3,225	Vertical, triple expansion, 2 screws.	17	$26\frac{1}{4}$	40	24	4 Mosher	240
Foote	Torpedo boat.	142	do	12	$19\frac{1}{2}$	[b]22	16	2 Mosher	95
Fox	do	132	do	$11\frac{7}{8}$	19	[b]$22\frac{7}{8}$	15	2 Thornycroft.	88
Frolic	Converted gunboat.	607	Vertical, triple expansion, 1 screw.	14	23	36	24	1 single-ended Scotch, 1 auxiliary.	45
Galveston	Cruiser	3,100	Vertical, triple expansion, 2 screws.	18	29	[b]$35\frac{1}{2}$	30	6 Babcock & Wilcox.	300
Georgia	First-class battle ship.	14,948	do	35	57	[b]66	48	24 Niclausse	1,451.5

[a] Estimated.

[b] Two low-pressure cylinders.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
.....	14.6	1,896	968	7,000	.....	Good	Special service, North Atlantic Fleet.
4,750	22.5	1,720	39	c1,092	54.5	.....do	Reserve Torpedo Flotilla.
5,553	a 30.5	4,200	32	c1,498	.....	.....do	Special duty, New Suffolk, L. I.
4,763	23.41	1,750	40	.....	52.04	.....do	Navy-yard, Mare Island, Cal.
17,768	28	a 8,000	139	a2,500	201.26	.....do	First Torpedo Flotilla.
17,768	28.1	a 8,000	139	a2,500	201.25	.....do	do.
7,575	24.03	a 3,000	70	a1,680	a 80	.....do	Reserve Torpedo Flotilla.
13,200	a 16.5	a 4,500	800	a6,925	a 405	99 per cent completed ..	Neafie & Levy, Philadelphia, Pa.
13,200	a 16.5	a 4,500	800	a6,925	a 405	96 per cent completed ..	Fore River Ship and Engine Co., Quincy, Mass.
10,978	18.71	5,227	335	2,976	400.31	Fair	South Atlantic Squadron.
.....	a 16	a 3,800	1,294	7,000	.....	Good	Navy-yard, N. Y.
8,161.7	a 14.6	2,255	265	3,180	a 410	.....do	Special service.
4,442.28	a 13.5	a 1,500	225	2,250	.....	Fair	Asiatic Fleet.
4,200	a 13	a 1,000	200	.....	.....	Contract awarded	Gas Engine and Power Co., Morris Heights, N. Y.
8,287.7	26.5	.....	43	1,247	77.95	Good	Reserve Torpedo Flotilla.
.....	11.4	800	45	.....	.....	.....do	School-ship, Massachusetts.
4,698	22.62	1,875	40	984	57.47	.....do	Reserve torpedo flotilla.
2,964	a 10.5	a 800	160	1,440	.....	.....do	Atlantic training squadron.
9,912	30.13	5,600	76	2,250	108.31	.....do	Navy-yard, Mare Island, Cal.
1,490.44	9	300	80	a2,500	.....	Fair	Loaned to naval militia, District of Columbia.
9,460	12.4	2,395.03	340	c1,680	226.38	Good	North Atlantic fleet, coast squadron.
5,260	21.53	2,000	43	1,235	50.82	.....do	Reserve torpedo flotilla.
4,763	22.05	1,750	40	.....	51.92	.....do	Navy-yard, Mare Island, Cal.
1,235	a 11	a 550	80	1,920	.....	.....do	Asiatic fleet.
13,200	a 16.5	4,500	800	a6,925	405	79 per cent completed ..	Wm. R. Trigg Co., Richmond, Va.
57,225	a 19	a 19,000	a 1,700	a 3,800	.....	43 per cent completed ..	Bath Iron Works, Bath, Me.

c At 14 knots (estimated).

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter. H.P.	Cylinder diameter. I.P.	Cylinder diameter. L.P.	Stroke.	Number and type of boilers.	Total grate surface.
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Glacier	Supply boat	a7,000	Vertical, triple expansion.	30	48	78	54	3 double-ended return-fire tubular; 1 single-ended auxiliary.	264
Gloucester	Converted gunboat.	786	do	21	32	54	30	2 Scotch single-ended.	
Goldsborough.	Torpedo boat.	247½	Vertical, triple expansion, 2 screws.	19⅛	31⅜	b35⅜	20	3 Thornycroft.	216
Grampus	Submarine torpedo boat.	120	Otto gasoline engine.c Electric motor.d						
Gunboat No. 16.									
Gwin	Torpedo boat.	46	Vertical, triple expansion, 1 screw.	12½	18	25	13½	1 Normand	38
Gen. Alava	Transport	1,390	do	17	27	45	30	Cylindrical, horizontal return-fire tubular.	81.6
Hancock	Converted cruiser.		3 cylinder, vertical, triple expansion, 1 screw.	33⅜	56	92	65½	3 double-ended Scotch, 2 single-ended Scotch.	468
Hannibal	Collier	4,291	Vertical, triple expansion.	20⅛	33	54	39	2 horizontal return tubular.	
Hartford	Cruiser	2,790	Horizontal, compound, 1 screw.	35		66	48	4 single-ended cylindrical.	186.4
Helena	Light-draft gunboat.	1,392	Vertical, triple expansion, 2 screws.	14½	22	33⅜	18	6 single-ended cylindrical.	126
Hopkins	Torpedo-boat destroyer.	408	do	22	32½	b34	18	4 Thornycroft	294
Hull	do	408	do	22	32½	b34	18	do	294
Holland	Submarine torpedo boat.	74	Otto gasoline engine.c Electric motor.d						
Idaho	First-class battle ship.								
Illinois	do	11,565	Vertical, triple expansion, 2 screws.	33½	51	78	48	8 single-ended cylindrical.	685
Indiana	do	10,288	do	34⅛	48	75	42	4 double and 2 single ended cylindrical.	616
Iowa	do	11,340	do	39	55	85	48	3 double and 2 single ended cylindrical.	756
Iris	Distilling ship	6,100	Vertical, compound condensing.	31		70	48	2 double-ended Scotch; 1 donkey.	154
Isla de Cuba	Gunboat	1,125	Horizontal, triple expansion, 2 screws.	18⅛	29	43	24	2 gunboat	148.5
Isla de Luzon	do	1,125	do	18⅛	29	43	24	do	148.5
Jason	Single-turret monitor.	1,875	Horizontal, vibrating lever, half trunk (obsolete).	40		40	22		

a Estimated. b Two low-pressure cylinders. c Surface.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
7,810	a 12.3	1,650	1,070	5,680	.....	Fair	Navy-yard, Norfolk, Va.
.....	17	a 2,000	98	1,150	.....	....do	South Atlantic squadron (tender).
13,500	a 30	5,850	131	.....	.....	95 per cent completed..	Navy-yard, Puget Sound, Bremerton, Wash.
.....	c 8.45 a 7.3	160	e 850	.....	.....	Good	Navy-yard, Mare Island Cal.
.....	.....	.....	.....	.....	.....	Contract not awarded..	
1,870	20.88	850	8	500	15.6	Under repairs	Navy-yard, Norfolk, Va.
1,855	10	770	120	2,200	.....	Fair	Asiatic Station (out of commission).
14,578	.....	4,000	2,570	.....	.....	....do	Navy-yard, New York.
.....	a 10	a 1,100	275	4,500	.....	....do	Collier service.
6,340	12	2,000	260	.....	a 290	Good	North Atlantic fleet, coast squadron.
4,800	15.5	1,988	274	2,300	185.18	....do	Asiatic fleet.
17,612	29.02	8,456	150	.....	205.7	....do	Navy-yard, League Island, Pa.
17,612	28.03	9,119	150	.....	a 189	....do	Second torpedo flotilla.
.....	8	50	.....	.....	.....	....do	U. S. Naval Academy, Annapolis, Md.
.....	.....	.....	.....	.....	.....	Contract not awarded..	.....
21,649	17.449	12,898.7	1,297	4,250	1,278.77	Good	North Atlantic fleet, battle-ship squadron.
19,194.6	15.55	9,788	1,550	4,600	1,241.85	....do	North Atlantic fleet, coast squadron.
24,082.2	17.09	12,105	1,600	4,500	1,292.87	Under repairs	Navy-yard New York.
4,918	10.5	a 1,300	2,100	10,000	.....	Fair	Asiatic fleet.
5,508.5	13.08	807	160	1,920	.....	....do	Do.
5,508.5	11.23	534.7	160	1,920	.....	Under repairs	Navy-yard, Pensacola, Fla.
.....	5 to 6	.....	.....	.....	.....	Stripped for sale.....	Navy-yard, League Island, Pa.

a Submerged. e Gallons gasoline.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter.			Stroke.	Number and type of boilers.	Total grate surface.
				H.P.	I.P.	L.P.			
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Justin	Collier	3,300	Vertical, triple expansion.	21	35	57.5	39	2 single-ended return fire tubular.	72
Kansas	First-class battle ship.	16,000	Vertical, triple expansion, 2 screws.	32½	53	b61	48	12 Babcock & Wilcox.	1,100
Katahdin	Harbor defense ram.	2,155	Horizontal, triple expansion, 2 screws.	25	36	56	36	2 double and 1 single ended cylindrical.	354
Kearsarge	First-class battle ship.	11,525	Vertical, triple expansion, 2 screws.	33.5	51	78	48	3 double and 2 single ended cylindrical.	685
Kentucky	do	11,525	do	33.5	51	78	48	do	685
Lancaster	Cruiser	3,250	Single, horizontal, back-acting.	60½	.....	60	36	2 main and 2 auxiliary horizontal tubular.	342
Lawrence	Torpedo-boat destroyer.	400	Vertical, triple expansion, 2 screws.	22	31	b34	20	4 Fore River	304
Lawton	Converted cruiser.	.....	3 cylinder, vertical, inverted, triple expansion, 1 screw.	28	44	70	65½	6 single-ended cylindrical.	288
Lebanon	Collier	3,375	Vertical, triple expansion.	19	30	50	30	2 Scotch single-ended.	209
Lehigh	Single-turret monitor.	1,875	Simple, horizontal, vibrating lever, half trunk (obsolete).	40	.....	40	22	.....	.....
Leonidas	Collier	4,242	Vertical, triple expansion.	20.5	33	54	39	2 Clark type; 1 donkey, Cochran type.	.....
Louisiana	First-class battle ship.	16,000	Vertical, triple expansion, 2 screws.	32½	53	b61	48	12 Babcock & Wilcox.	1,097
Machias	Gunboat	1,177	do	15.75	22.5	35	24	2 marine locomotive.	120
Macdonough	Torpedo-boat destroyer.	400	do	22	31	b34	24	4 Fore River	304
Mackenzie	Torpedo boat.	65	Vertical, triple expansion, 1 screw.	12	19.25	b22	16	2 Thornycroft.	40
Maine	First-class battle ship.	12,500	Vertical, triple expansion, 2 screws.	38.5	59	92	42	24 Niclausse	1,353
Manila	Transport	1,800	2 cylinder compound.	32	.....	61	39	2 single-ended Scotch; 1 vertical auxiliary.	117
Manly	Torpedo boat.	30	Single screw	.....	.....	.....	.....	.....	.....
Marblehead	Unprotected cruiser.	2,089	Vertical, triple expansion, 2 screws.	26.5	39	63	26	3 double and 2 single ended cylindrical.	414
Marcellus	Collier	4,400	Vertical, compound inverted.	38	.....	66	60	2 return-fire tubular.	.....
Marietta	Composite gunboat.	1,000	Vertical, triple expansion, 2 screws.	12	18	28	18	2 Babcock & Wilcox.	94
Maryland	Armored cruiser.	13,680	do	38½	63½	b74	48	16 Babcock & Wilcox.	1,600

a Estimated.

b Two low-pressure cylinders.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I.H.P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last reports.	Present series.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
3,196	a 10.9	.....	167	3,300	.....	Fair	Collier service.
46,750	a 18	a 16,500	a2,200	.....	.....	Contract awarded	New York Shipbuilding Co., Camden, N. J.
12,150	16.11	5,068	202	1,000	413.34	Good	Navy-yard, League Island, Pa.
22,104	16.8	11,954.37	1,573	5,316	1,195	.....do	North Atlantic fleet, battle-ship squadron.
22,104	16.9	12,318.41	1,591	5,360	1,197	.....do	Asiatic fleet.
4,330	a 9.7	1,000	326	.....	.....	Poor	Out of commission, navy-yard, League Island, Pa.
18,117	28.5	a 8,400	115	.....	a 189	Good	Second torpedo flotilla.
10,164	.....	2,000	.....	.....	.....	Fair	Navy-yard, Mare Island, Cal.
.....	12.5	.....	250	.....	.....	Good	Collier service.
.....	.....	.....	.....	.....	.....	Stripped for sale.....	Navy-yard, League Island, Pa.
.....	a 9.5	1,100	550	5,000	.....	Fair	Collier service.
52,752	a 18	a16,500	2,200	5,000	.....	10.5 per cent completed.	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
4,590	15.46	1,873	290	4,500	143.7	Good	European squadron.
18,117	28.03	a 8,400	115	a1,920	a 189	29.9 per cent completed.	Fore River Ship and Engine Co., Quincy, Mass.
2,163	20.11	1,192	15.3	720	26.6	Good	Reserve torpedo flotilla.
58,104	18	15,840.8	1,803	.....	1,599.03	Under repairs	Wm. Cramp & Sons Ship and Engine Building Co., Philadelphia, Pa.
3,191	a 11	800	200	2,160	.....	Poor	Navy-yard, Mare Island, Cal.
.....	17	250	.....	.....	.....	Good	U. S. Naval Academy Annapolis, Md.
11,058	18.44	5,450	335	2,900	429.9	.....do	Pacific squadron.
.....	a 11	1,200	210	.....	.....	.....do	Collier service.
3,664	13.02	1,054	236	3,760	110.15	Under repairs	Navy-yard, Boston, Mass.
70,944	a 22	a23,000	2,000	.....	.....	51 per cent completed..	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.

c Surface. *d* Submerged.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter. H.P.	Cylinder diameter. I.P.	Cylinder diameter. L.P.	Stroke.	Number and type of boilers.	Total grate surface.
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Massachusetts.	First-class battle ship.	10,288	Vertical, triple expansion, 2 screws.	34.5	48	75	42	4 double and 2 single ended cylindrical.	616
Mayflower...	Converted cruiser.	2,690	....do....	22.5	38	40 [b]	27	2 single-ended cylindrical and 1 vertical.	212
McKee.....	Torpedo boat.	65	Vertical, triple expansion, 1 screw.	12	19.25	22 [b]	16	2 Thornycroft.	40
Miantonomoh.	Double-turret monitor.	3,990	Compound, inclined, 2 screws.	32	.....	48	42	6 single-ended cylindrical.	369
Michigan....	Paddle-wheel cruiser.	685	Inclined, simple.	36	.....	36	96	2 flue and return-fire tubular.	91
Milwaukee..	Protected cruiser.	9,700	Vertical, triple expansion, 2 screws.	36	59½	69 [b]	45	16 Babcock & Wilcox.	1,400
Minneapolis.	....do....	7,375	Vertical, triple expansion, 3 screws.	42	59	92	42	8 double and 2 single ended cylindrical.	1,520.2
Minnesota...	First-class battle ship.	16,000	Vertical, triple expansion, 2 screws.	32½	53	61 [b]	48	12 Babcock & Wilcox.	1,100
Mississippi ..	....do....	.....	.....	.....	.....	.....	.....	.....	.....
Missouri.....	....do....	12,500	Vertical, triple expansion, 2 screws.	34.75	53	63 [b]	48	12 Thornycroft.	1,000
Moccasin....	Submarine torpedo boat.	122.55	Otto gasoline engine. [c] Electric motor. [d]	.....	.....	.....	.....	.....	.....
Mohican	Cruiser.....	1,900	Horizontal, back-acting, compound.	42	.....	64	42	8 cylindrical, return-fire, tubular.	128
Monadnock .	Double-turret monitor.	3,990	Horizontal, triple expansion, 2 screws.	19.75	30.75	52.75	30	4 single-ended cylindrical.	200
Monocacy...	Light-draft gunboat.	1,370	Paddle wheel, inclined, simple.	58.05	.....	.....	10.5	2 main rectangular, 2 horizontal, return tubular.	146.3
Montauk....	Single-turret monitor.	1,875	Horizontal, vibrating lever, half trunk (obsolete).	40	40	.....	22	.....	.....
Monterey....	Barbette turret, low free-board monitor.	4,084	Vertical, triple expansion, 2 screws.	27	41	64	30	4 Ward and 2 single-ended cylindrical.	383.2
Montgomery	Unprotected cruiser.	2,089	....do....	26.5	39	63	26	3 double and 2 single ended cylindrical.	368.43
Morris.....	Torpedo boat.	105	....do....	12.5	18	25	18.5	2 modified Normand.	80
Nahant.....	Single-turret monitor.	1,875	Horizontal, vibrating lever, half trunk (obsolete).	40	.....	40	22	.....	.....
Naushan	Collier.....	4,827	Vertical, triple expansion.	23	38	61	42	2 cylindrical, return-fire, tubular, 1 donkey.	120
Nashville....	Light-draft gunboat.	1,719	Vertical, quadruple expansion, 2 screws.	11	17 / 24	34	18	4 Yarrow and 2 single-ended cylindrical.	142

Estimated.

[b] Two low-pressure cylinders.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
19,194.6	16.21	10,415	1,560	4,500	1,062	Good	North Atlantic fleet, battle-ship squadron.
6,600	16.75	4,600	520	3,500		do	Special service.
2,294	19.82	850	15	720	22.68	do	Torpedo station, Newport, R. I.
8,781	10	1,426	240	1,200	509.77	do	Navy-yard, League Island, Pa.
2,572			125	2,240		do	Special service on Great Lakes.
64,000	22	21,000				27 per cent completed	Union Iron Works, San Francisco, Cal.
50,147	23.07	20,862	1,520	6,300	1,672	Good	Outofcommission, Navy-yard, League Island, Pa.
52,752	a18	a16,500	a2,200			Contract awarded	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
						Contract not awarded	
51,372	a15	a16,000	2,000		a1,120	95 per cent completed	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
	{ c8.416 d7.244 }	160	c850			Good	{ Torpedo Station, Newport, R. I.
3,284		a1,150	167			do	Training ship (landsmen).
6,242	11.63	2,163	386	2,600	292.8	do	Asiatic Fleet.
6,254	11.2	850	224	1,680		Fair	Do.
						Stripped, for sale	Navy-yard, League Island, Pa.
14,785	13.6	5,244	207	1,430	451.92	Good	Asiatic Fleet.
10,978	19.06	5,584	335	2,900	401.27	do	South Atlantic Fleet.
4,004	24	1,750	a28	a1,500	32.39	Under repairs	Navy-yard, New York.
						Stripped, for sale	Navy-yard, League Island, Pa.
3,365	11.2	1,400	417	4,224		Good	Asiatic Fleet.
5,350	16.3	2,536	395	3,400	170.74	Fair	{ North Atlantic Fleet, Caribbean Squadron.

c Surface. d Submerged. e Gallons gasoline.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter.			Stroke.	Number and type of boilers.	Total grate surface.
				H. P.	I. P.	L. P.			
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Nebraska	First-class battle ship.	14,948	Vertical, triple expansion, 2 screws.	35	57	66[b]	48	12 Babcock & Wilcox.	1,342
Nero	Collier	4,925	Vertical, triple expansion.	23	37⅜	61¼	39	2 single-ended cylindrical, 1 auxiliary vertical cylindrical.	90
Nevada	Single-turret monitor.	3,218	Vertical, triple expansion, 2 screws.	17	26½	40	24	4 Niclausse	220
Newark	Protected cruiser.	4,098	Horizontal, triple expansion, 2 screws.	34	52	76	40	4 double-ended cylindrical.	540
New Jersey	First-class battle ship.	14,948	Vertical, triple expansion, 2 screws.	35	57	66[b]	48	12 Babcock & Wilcox.	1,342
New Orleans	Protected cruiser.	3,769	do	31	46	70	30	4 double-ended cylindrical, 1 small donkey.	480
Newport	Composite gunboat.	1,000	Vertical, triple expansion, 1 screw.	15.5	23.5	36	30	2 single-ended cylindrical.	78
New York	Armored cruiser.	8,200	4 vertical, triple expansion, 2 screws.	32	47	72	42	6 double and 2 single ended cylindrical.	987.96
Nicholson	Torpedo boat.	174	Vertical, triple expansion, 2 screws.	18	27	27.5[b]	18	3 Mosher	157.5
O'Brien	do	174	do	18	27	27.5[b]	18	do	157.5
Ohio	First-class battle ship.	12,500	do	35.5	53	63[b]	48	12 Thornycroft.	924
Olympia	Protected cruiser.	5,870	do	42	59	92	42	4 double and 2 single ended cylindrical.	824
Oregon	First-class battle ship.	10,242	do	34.5	48	75	42	do	552
Paducah	Gunboat	1,000	do	9	15½	25½	21	2 Babcock & Wilcox.	100
Panther	Converted cruiser.	4,260	Vertical, triple expansion, 1 screw.	25	41	67	42	4 single-ended Scotch, 1 auxiliary.	246
Paul Jones	Torpedo-boat destroyer.	420	Vertical, triple expansion, 2 screws.	20.5	32	38[b]	22	4 Thornycroft	315
Pennsylvania.	Armored cruiser.	13,680	do	38.5	63.5	74[b]	48	32 Niclausse	1,600
Perry	Torpedo-boat destroyer.	420	do	20.5	32	38[b]	22	4 Thornycroft	315
Petrel	Gunboat	892	Horizontal, compound, 1 screw.	25		46	33	2 cylindrical straightway	93.2
Philadelphia	Protected cruiser.	4,410	Horizontal, triple expansion, 2 screws.	38	58	86	40	4 double-ended cylindrical.	624
Pike	Submarine torpedo boat.	120	Otto gasoline engine.[a] Electric motor.[a]						
Plunger	do	120	Otto gasoline engine.[a] Electric motor.[a]						
Pompey	Collier	3,085	Inverted, triple expansion.	19½	38	51	32	1 Scotch, 1 donkey.	74

[a] Estimated.

[b] Two low-pressure cylinders.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
56,184	a19	a19,000	a1,700	.....	.....	37½ per cent completed.	Moran Bros. Co., Seattle, Wash.
4,800	a9	a1,000	323	4,500	.....	Good	Collier service.
8,876	13.04	2,003.7	335	a1,680	274.91	.....do	North Atlantic Fleet, Coast Squadron.
16,736.5	a19	8,868	780	4,440	653	.....do	South Atlantic Squadron.
56,184	a19	a19,000	a1,700	.....	.....	23 per cent completed..	Fore River Ship and Engine Co., Quincy, Mass.
14,378	a21	7,500	743	4,400	.....	Good	Asiatic Fleet.
2,524	12.29	1,009	234	3,500	109.69	.....do	North Atlantic Fleet Caribbean Squadron.
32,958	21	17,401	1,300	4,800	1,311.3	Fair	Pacific Squadron.
8,406	a26	a3,500	.....	.....	a80	95 per cent completed..	Crescent Shipyard, Elizabethport, N. J.
8,406	a26	a3,500	.....	.....	a80	.....do	Do.
60,130	a18	a15,100	2,000	.....	a1,130	93 per cent completed..	Union Iron Works, San Francisco, Cal.
28,298.6	21.68	17,313	1,054	4,200	1,162.56	Good	North Atlantic Fleet, Caribbean Squadron.
17,460	16.79	11,111	1,540	5,300	1,009.23	.....do	Asiatic Fleet.
4,200	a13	a1,000	200	.....	.....	Contract awarded.....	Gas Engine and Power Co., Morris Heights, N. Y.
.....	13	.....	700	4,800	.....	Good	North Atlantic Fleet, Caribbean Squadron.
17,783	28.91	8,000	.....	.....	201.25	.....do	Navy-yard, Mare Island, Cal.
68,308	a22	a23,000	2,000	.....	.....	53 per cent completed..	Wm. Cramp & Sons Ship and Engine Building Co., Philadelphia., Pa.
17,763	28.32	a7,950	.....	.....	200.67	Good	Navy-yard, Mare Island, Cal.
2,504.8	11.55	1,045	200	3,200	112.5	Under repairs	Do.
20,457	19.68	8,815	1,020	5,400	705.36	Fair	Puget Sound, Bremerton, Wash.
.....	c8.51 a7.18	a160	c850	.....	.....	Good	Navy-yard, Mare Island, Cal.
.....	c8.876 a7.258	a160	c850	.....	.....	.....do	Torpedo Station, Newport, R. I.
2,672	10.5	.....	203	.....	.....	.....do	Collier service.

c Surface. d Submerged. e Gallons gasoline.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter. H. P.	Cylinder diameter. I. P.	Cylinder diameter. L. P.	Stroke.	Number and type of boilers.	Total grate surface.
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Porpoise	Submarine torpedo boat.	120	Otto gasoline engine.[a] Electric motor.[a]						
Porter	Torpedo boat.	165	Vertical, triple expansion, 2 screws.	16	22.5	[b]25	16	3 modified Normand.	160.6
Prairie	Converted cruiser.	6,872	Vertical, triple expansion, 1 screw.	32	52	84	54	3 double-ended Scotch, 1 small auxiliary.	447
Preble	Torpedo-boat destroyer.	420	Vertical, triple expansion, 2 screws.	20.5	32	[b]38	22	4 Thornycroft	315
Princeton	Composite gunboat.	1,000	Vertical, triple expansion, 1 screw.	15½	23.5	36	30	2 single-ended cylindrical.	78
Puritan	Double-turret monitor.	6,060	Horizontal, compound, 2 screws.	50	.....	86	42	8 single-ended cylindrical.	566
Rainbow	Distilling ship	6,200	Vertical, triple expansion, 1 screw.	28	44	72	48	2 Scotch	246
Raleigh	Protected cruiser.	3,213	Vertical, triple expansion, 2 screws.	24	44.5	[b]57	33	8 Babcock & Wilcox.	506
Ranger	Cruiser	1,020	Horizontal, compound, back-acting.	28	.....	42	42	4 cylindrical return-fire tubular.	120
Reina Mercedes.	Protected cruiser.	3,090							
Relief	Converted cruiser.	.....	3 cylinder, vertical, inverted, triple expansion, 1 screw.	30	48	75	54	6 single-ended cylindrical.	447.75
Rhode Island	First-class battle ship.	14,948	Vertical, triple expansion, 2 screws.	35	57	[b]66	48	12 Babcock & Wilcox.	1,342
Rodgers	Torpedo boat.	142	.....do	12	19½	[b]22	16	2 Mosher	95
Rowan	.....do	182	.....do	14.5	23	[b]25½	18	3 Mosher	143.4
San Francisco.	Protected cruiser.	4,098	Horizontal, triple expansion, 2 screws.	42	60	90	36	4 double-ended cylindrical.	553
Saturn	Collier	6,220	Vertical, triple expansion, inverted.	22	32	52	48	4 Scotch double-flue, 1 donkey.	.....
Scorpion	Converted gunboat.	850	Vertical, triple expansion.	15	24	39	21	4 main and 1 auxiliary Yarrow.	159.4
Shark	Submarine torpedo boat.	120	Otto gasoline engine.[a] Electric motor.[a]						
Shubrick	Torpedo boat.	165	Vertical, triple expansion, 2 screws.	14	22	[b]25½	18	3 Thornycroft.	137
Solace	Hospital ship.	4,700	Vertical, triple expansion.	28	44	74	54	3 double-ended Scotch, 1 single-ended auxiliary.	388
Somers	Torpedo boat.	145	Vertical, quadruple expansion, 1 screw.	17	24 / 33 3/4	42½	18½	1 locomotive type.	47

[a] Estimated. [b] Two low-pressure cylinders. [c] Surface.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
.....	{ c 8.4 / d 7.1 }	a 160	e 850	.....	.....	Good	Torpedo Station, Newport, R. I.
8,288	28.63	.....	43	1,190	77.95	.....do	Reserve Torpedo Flotilla.
10,506	a 14.5	a 3,800	1,370	8,200	.....	.....do	Atlantic Training Squadron.
17,782.9	28.08	7,370.5	.....	.....	201.23	.....do	Navy-yard, Mare Island, Cal.
2,521	10.63	923	239	3,800	104.46	Under repairs	Do.
13,280	a 12.5	3,700	310	1,140	.....	Good	Navy-yard, League Island, Pa.
6,419	a 12	a 1,800	1,121	4,872	.....	.....do	Asiatic Fleet.
21,130	a 20	a 8,500	577	a 4,560	.....	Fair	Do.
2,945	a 10	a 500	178	.....	.....	Good	Out of commission, navy-yard, Puget Sound, Bremerton, Wash.
.....	.....	.....	.....	.....	.....	Unfit for service	Navy-yard, Portsmouth, N. H.
.....	.....	2,666	.....	.....	.....	Fair	Navy-yard, Mare Island, Cal.
56,184	a 19	a 19,000	1,700	.....	.....	23 per cent completed	Fore River Ship and Engine Co., Quincy, Mass.
5,260	24.5	2,411	44	1,200	50.82	Good	Reserve Torpedo Flotilla.
7,890	27.07	3,200	60	1,800	82.71	.....do	Navy-yard, Puget Sound, Bremerton, Wash.
19,656	19.52	10,604	650	4,000	749.12	.....do	European Squadron.
.....	11	1,500	335	3,500	.....	Under repairs	Navy-yard, Puget Sound, Bremerton, Wash.
8,381	17.85	2,800	133	2,200	.....	Fair	North Atlantic Fleet, tender to battle ship squadron.
.....	{ c 8.27 / d 7.28 }	a 160	e 850	.....	.....	Good	Torpedo Station, Newport, R. I.
7,518	a 26	3,000	70	2,240	a 80	Under repairs	Navy-yard, Norfolk, Va.
10,910	a 15	a 3,200	1,163	7,000	.....	Good	Transport service to Manila.
2,242	a 23	a 1,900	80	.....	.....	.....do	Reserve Torpedo Flotilla.

d Submerged. *e* Gallons gasoline.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter.			Stroke.	Number and type of boilers.	Total grate surface.
				H.P.	I.P.	L.P.			
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Southery	Collier	3,100	Vertical, triple expansion, inverted.	21	35	57½	39	2 single-ended return-fire tubular, 1 auxiliary vertical cylindrical.	.....
South Dakota	Armored cruiser.	[b]13,680	Vertical, triple expansion, 2 screws.	38¼	63½	[b]74	48	16 Babcock & Wilcox.	1,600
Sterling	Collier	5,663	Triple expansion.	20	32	53	42	1 Scotch, 1 auxiliary upright.	.....
St. Louis	Protected cruiser.	9,700	Vertical, triple expansion.	36	59½	69	45	16 Babcock & Wilcox.	1,400
Stewart	Torpedo-boat destroyer.	420	Vertical, triple expansion, 2 screws.	20.5	32	[b]38	22	4 Seabury	315
Stiletto	Torpedo boat.	31	Vertical, compound, 1 screw.	12	21	.....	12	1 Almy	29
Stockton	do	165	Vertical, triple expansion, 2 screws.	14	22	[b]25½	18	3 Thornycroft.	137
Stringham	do	340	do	22	32½	[b]34	18	4 Thornycroft	252
Supply	Supply ship	4,460	Vertical, triple expansion, 1 screw.	23	36	60	36	1 main, 2 auxiliary Scotch.	114
Tacoma	Cruiser	3,100	Vertical, triple expansion, 2 screws.	18	29	[b]35.5	30	6 Babcock & Wilcox.	300
Talbot	Torpedo boat.	46½	Vertical, triple expansion, 1 screw.	12.5	18	25	13.5	1 Normand	38
Tennessee	Armored cruiser.	14,500	Vertical, triple expansion, 2 screws.	38.5	63.5	[b]74	48	16 Babcock & Wilcox.	1,590
Terror	Double-turret monitor.	3,990	Inclined, compound, 2 screws.	32	.....	48	46	6 single-ended cylindrical.	378
Texas	Second-class battle ship.	6,315	Vertical, triple expansion, 2 screws.	36	51	78	39	4 double-ended cylindrical.	531.6
Thornton	Torpedo boat.	165	do	14	22	[b]25½	18	3 Thornycroft	137
Tingey	do	165	do	14	22	[b]25½	18	do	137
Topeka	Gunboat	2,372	Horizontal, compound, 2 screws.	35.5	.....	58	36	2 double and 2 single ended cylindrical.	273
Truxton	Torpedo-boat destroyer.	433	Vertical, triple expansion, 2 screws.	23	34	[b]37	20	4 Thornycroft	300
Vermont	First-class battle ship.	16,000	do	32.5	53	[b]61	48	12 Babcock & Wilcox.	1,100
Vesuvius	Dynamite gun vessel.	929	do	21.5	31	[b]34	20	4 marine locomotive.	195
Vicksburg	Composite gunboat.	1,000	Vertical, triple expansion, 1 screw.	15	23.5	36	30	2 single-ended cylindrical.	78
Virginia	First-class battle ship.	14,948	Vertical, triple expansion, 2 screws.	35	57	[b]66	48	24 Niclausse	1,280
Vixen	Converted gunboat.	806	do	18	27	48	25	2 single-ended cylindrical, return-fire, tubular.	.....

[a] Estimated.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
.....	a11	.....	380	5,500	.....	Fair	Prison ship, navy-yard, Boston, Mass.
70,944	a22	a23,000	.....	.....	.....	31 per cent completed	Union Iron Works, San Francisco, Cal.
.....	a11	a1,000	550	7,000	.....	Fair	Collier service.
61,000	a22	a21,000	.....	.....	.....	26 per cent completed	Neafie & Levy, Philadelphia, Pa.
17,782	29.7	a8,000	139	.....	204.65	Good	Second Torpedo Flotilla.
1,100	18.22	359	6	168	10.95	.....do	Torpedo Station, Newport, R. I.
7,548	25.88	3,000	70	1,680	88.64	.....do	Reserve Torpedo Flotilla.
16,020	a30	7,200	120	.....	.....	Ready for trial	The Harlan and Hollingsworth Co., Wilmington, Del.
3,827	.....	1,069	952	8,160	.....	Good	Special service.
13,200	a16.5	a4,500	800	.....	a405	89 per cent completed	Union Iron Works, San Francisco, Cal.
1,870	21.15	850	.....	.....	15.56	Good	U. S. Naval Academy, Annapolis, Md.
68,000	a22	a23,000	2,600	.....	.....	Commenced	Wm. Cramp & Sons Ship and Engine Building Co., Philadelphia, Pa.
8,781	a12	1,600	260	1,300	486.88	Good	U. S. Naval Academy, Annapolis, Md.
16,912.4	a17	8,610	830	2,900	692.64	.....do	North Atlantic Fleet, Coast Squadron.
7,548	27.57	3,000	70	.....	88.64	.....do	Reserve Torpedo Flotilla.
7,548	a26	3,000	70	.....	a80	89 per cent completed	Columbia Iron Works and Dry Dock Co., Baltimore, Md.
8,462	a16	a2,200	394	3,800	.....	Good	North Atlantic Fleet, Training Squadron.
19,748	29.58	8,300	185	.....	207.16	.....do	Second Torpedo Flotilla.
46,750	a18	a16,500	2,200	.....	.....	Contract awarded	Fore River Ship and Engine Co., Quincy, Mass.
8,981	21.65	4,295	145	1,800	214.93	Needs extensive repairs	Navy-yard, Boston, Mass.
2,524	12.71	1,118	235	4,000	109.67	Fair	Asiatic Fleet.
57,534	a19	a19,000	a1,700	.....	.....	27 per cent completed	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
.....	a16	a1,250	170	3,000	.....	Fair	North Atlantic Fleet, Caribbean Squadron.

b Two low-pressure cylinders.

Machinery Data of United

Name of vessel.	Type of vessel.	Displacement.	Type of engine.	Cylinder diameter. H. P.	Cylinder diameter. I. P.	Cylinder diameter. L. P.	Stroke.	Number and type of boilers.	Total grate surface.
		Tons.		*In.*	*In.*	*In.*	*In.*		*Sq. ft.*
Washington	Armored cruiser.	14,500	Vertical, triple expansion, 2 screws.	38.5	63.5	74*b*	48	16 Babcock & Wilcox.	1,600
Wasp	Converted gunboat.	630	Inverted, triple expansion.	21.5	31	34*b*	20	2 Scotch, 1 donkey.	.....
West Virginia	Armored cruiser.	13,680	Vertical, triple expansion, 2 screws.	38½	63½	74*b*	48	16 Babcock & Wilcox.	1,600
Wheeling	Composite gunboat.	1,000	.....do.....	12	18	28	18	2 single-ended cylindrical.	60
Whipple	Torpedo-boat destroyer.	433	.....do.....	23	34	37*b*	20	4 Thornycroft	300
Wilkes	Torpedo boat.	165	.....do.....	14	22	25½*b*	18	3 Seabury	137.4
Wilmington	Light-draft gunboat.	1,719	.....do.....	14.5	22	33.75	18	6 single-ended cylindrical.	126
Winslow	Torpedo boat.	142	.....do.....	12	19½	22*b*	16	2 Mosher	95
Wisconsin	First-class battle ship.	11,565	.....do.....	33.5	51	78	48	8 single-ended cylindrical.	640
Worden	Torpedo-boat destroyer.	433	.....do.....	23	34	37*b*	20	4 Thornycroft.	300
Wyoming	Monitor	3,218	.....do.....	17	26½	40	24	4 Babcock & Wilcox.	216
Yankee	Converted cruiser.	6,888	Vertical, triple expansion, 1 screw.	32	52	84	51	3 double-ended, 1 single-ended, Scotch.	458
Yankton	Converted gunboat.	975	.....do.....	18	29	47	33	1 single-ended, cylindrical, Scotch.	67
Yorktown	Gunboat	1,710	Horizontal, triple expansion, 2 screws.	22	31	50	30	4 straight-way cylindrical.	220
Zafiro	Supply ship	1,200	Compound	.....	.....	.....	.....	Scotch	.....

a Estimated.

States Naval Vessels—Continued.

Total heating surface.	Trial speed.	Total maximum I. H. P.	Total bunker capacity.	Coal endurance at 10 knots per hour.	Total weight of machinery.	Present condition of machinery as per last report.	Present service.
Sq. ft.	*Knots.*		*Tons.*	*Knots*	*Tons.*		
70,914	a22	a23,000	2,000	.....	.....	Commenced.....	New York Shipbuilding Co., Camden, N. J.
.....	a16.5	a1,800	108	2,880	.....	Good	Special service.
70,941	a22	a23,000	a2,000	.....	.....	62 per cent completed..	Newport News Shipbuilding and Dry Dock Co., Newport News, Va.
2,508	12.88	1,080	226	4,000	115.61	Good	Station ship, Tutuila, Samoa.
19,748	28.24	8,300	185	.....	207.45	.....do	Second Torpedo Flotilla.
7,800	25.99	3,000	70	2,400	95.16	.....do	Reserve Torpedo Flotilla.
4,800	15.08	1,894	280	2,200	185.15	.....do	Asiatic Fleet.
5,260	24.82	2,000	42	1,200	50.82	Good	Torpedo Station, Newport, R. I.
21,205	17.17	12,609	1,295	4,200	1,278.08	.....do	Asiatic Fleet.
19,748	29.86	8,300	185	.....	207.48	.....do	Second Torpedo Flotilla
8,800	11.8	2,451.69	380	.....	263.30	.....do	Pacific Squadron.
10,641	a14	a3,800	988	5,200	.....	.....do	North Atlantic Fleet, Training Squadron.
1,872	a11	a750	170	2,640	.....	.....do	Special service.
8,092	16.14	3,392	870	3,300	264.82	Under repairs	Navy-yard, Mare Island Cal.
.....	10.5	850	175	2,880	.....	Good	Asiatic Fleet.

b Two low-pressure cylinders.

Gunboats and Converted Yachts under 600 tons displacement.

Name of vessel.	Type of vessel.	Displacement.	I. H. P.	Speed.	Coal capacity.	Condition of machinery as per last report.	Present station.
		Tons.		*Knots.*	*Tons.*		
Aileen	Converted yacht	192	500	14	45	Good	Loaned to Naval Militia, New York.
Albay	Gunboat	151	125			do	Asiatic Station.
Alvarado	do	100			16	Fair	Naval Academy.
Arayat	do	137				Good	Asiatic Station.
Basco	do	42	44			Fair	Do.
Belusan	do	200				Good	Do.
Calamianes	do	151	125			do	Do.
Callao	do	208	250		9.7	do	Do.
Dorothea	Converted yacht	594	1,558	14	78	do	Naval Militia, Illinois.
Eagle	do	434	850	15.5	65	do	Special service.
Elfrida	do	173	200	10.5	23	Fair	Naval Militia, Connecticut.
Elcano	Gunboat	560	600		93	Good	Asiatic Station.
Guardoqui	do	42	44			Poor	Do.
Hawk	Converted yacht	375	1,000	14.5	70	Good	Naval Militia, Ohio.
Hist	do	472	1,000	14.5	60	do	First naval district tender.
Hornet	do	424	800	15	70	do	Navy-yard, Norfolk, Va.
Huntress	do	82		14	17	do	Naval Militia, New Jersey.
Inca	do	120	400	14	25	do	Naval Militia, Massachusetts.
Leyte	Gunboat	151	120	8	24	do	Asiatic Station.
Manileno	do	142	125	17	21	do	Do.
Mariveles	do	142	125			do	Do.
Mindanao	do	174	100			do	Do.
Mindoro	do	142	125			do	Do.
Oneida	Converted yacht	150	350	12	20	do	Naval Militia, District of Columbia.
Pampanga	Gunboat	201	250			do	Asiatic Station.
Panay	do	142	125			do	Do.
Paragua	do	201	250	8.8		Fair	Do.
Pinta	do	550	310		220	Poor	Naval Militia, California.
Quiros	do	350	550	13	78	Good	Asiatic Station.
Restless	Converted yacht	137	500	13	16	Fair	Navy-yard, Norfolk.
Samar	Gunboat	210	250	10.5	33	Good	Asiatic Station.
Sandoval	do	100	666	8	16	Fair	Naval Academy.
Shearwater	Converted yacht	122		12	12	Good	Naval Militia, Pennsylvania.
Siren	do	315		13	45	Fair	Tender to Franklin.
Stranger	do	546		14	50	Good	Naval Militia, Louisiana.
Sylph	do	152	550	15	40	do	Special service.
Sylvia	do	302		9	60	do	Naval Militia, Maryland.
Urdaneta	Gunboat	42	44	8	6.5		Asiatic Station.
Villalobos	do	347	500		65		Do.

Tugboats.

Name of vessel.	Displacement.	I. H. P.	Speed.	Coal capacity.	Condition of machinery as per last report.	Present service.
	Tons.		*Knots.*	*Tons.*		
Accomac	187	250	10	35	Good	Navy-yard, Key West.
Active	296	600	12	80	do	Navy-yard, Mare Island.
Alice	356	250	10	15	do	Navy-yard, Norfolk.
Apache	650	550	10	120	Fair	Navy-yard, New York.
Chickasaw	100		10	20	Good	Do.
Choctaw	350	188	10	70		Navy-yard, Norfolk.
Fortune	450	340	10	80	Good	Pacific Squadron, tender.
Hercules	198		12	40	do	Navy-yard, Norfolk.
Iroquois	702	1,000	13.25	205	do	Naval station, Honolulu.
Iwana	192	300	11.5	35	do	Navy-yard, Boston.
Leyden	450	340	10	80	do	Torpedo station, Newport.
Massasoit	202			34	do	Naval station, Key West.
Modoc	241		10	40	do	Navy-yard, League Island.
Mohawk	420	400	12	22	do	Navy-yard, Norfolk.
Narkeeta	192	300	11.5	35	do	Navy-yard, New York.
Nezinscot	156	400	10	40	do	Navy-yard, Portsmouth, N. H.
Nina	357	388	11.12	80	do	Navy-yard, New York.
Osceola	571		14	140	Fair	Naval station, Pensacola.
Pawnee	275	250	10	16	Good	Navy-yard, New York.
Pawtucket	225	450	12.2	30	do	Navy-yard, Puget Sound.
Penacook	225	450	12	28	do	Naval station, Port Royal.
Pentucket						
Peoria						
Piscataqua	631	2,000	16	328	Poor	Asiatic Station.
Pontiac	401	425	10.5	45	Good	Navy-yard, New York.
Potomac	677	2,000	16	200	do	Naval station, San Juan, P. R.
Powhatan	194	397	13	57	do	Navy-yard, New York.
Rapido	66				Fair	Asiatic Station.
Rocket						
Samoset	225	450	12	30	Good	Navy-yard, League Island.
Sebago	190		12	30	do	Naval station, Pensacola.
Sioux	155	290	10	45	do	Navy-yard, Portsmouth, N. H.
Sotoyomo						
Standish	450	340	10	80	Good	Naval Academy.
Tecumseh	214	500	11	40	Fair	Navy-yard, Washington.
Traffic	280		10		Good	Navy-yard, New York.
Triton	212	300	13	45	do	Navy-yard, Washington.
Unadilla	345	500	12	65	do	Navy-yard, Mare Island.
Uncas	441	750	12	120	do	Naval station, San Juan.
Vigilant	300	450	12	75	do	Training station, Goat Island, Cal.
Waban	150		13	25	do	Navy-yard, Pensacola.
Wahneta	192	300	11.5	35	do	Navy-yard, Norfolk.
Wompatuck	462	650	13	130	do	Asiatic Station.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1905, by the Bureau of Steam Engineering, Navy Department.

Detailed objects of expenditures, and explanations.	Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1904.
SALARIES.			
Chief clerk	$2,000		
1 clerk, class 3	1,600		
1 clerk, class 2	1,400		
1 clerk, class 1 (this clerk is employed in the office of the Secretary of the Navy)	1,200		
1 assistant messenger	720		
2 laborers	1,320		
1 draftsman, class 2	1,400		
1 assistant draftsman, class 1	1,200		
1 stenographer and typewriter, Class E	1,000		
Do	900		
		$12,740	$12,740
One clerk of class 2 is regularly employed in this Bureau and borne on the rolls of the Hydrographic Office at $1,400 per annum. It is recommended that this clerk be appropriated for and borne on the rolls of the Bureau of Steam Engineering. None of the above employees are "below a fair standard of efficiency" for the ratings under which they are severally employed.			
SALARIES HERETOFORE PAID UNDER APPROPRIATION "INCREASE OF THE NAVY."			
One clerk, $4 per diem	1,252.00		1,252.00
One clerk, $3.52 per diem	1,101.76		1,101.76
Two clerks, $3.28 per diem	2,053.28		2,053.28
One clerk, $3.04 per diem	951.52		951.52
One special laborer, $2.48 per diem	776.24		776.24
Two laborers, $2 per diem	1,252.00		1,252.00
One messenger boy, $1.52 per diem, in lieu of one messenger boy at $1.04 (submitted)	475.76		325.52
One chief draftsman, $7.04 per diem	2,202.52		2,202.52
Two draftsmen, $6.48 per diem	4,056.48		4,056.48
Three draftsmen, $6 per diem	5,634.00		5,634.00
Three draftsmen, $5.52 per diem	5,183.28		5,183.28
Two draftsmen, $5.04 per diem	3,155.04		3,155.04
Three draftsmen, $4.72 per diem	4,432.08		4,432.08
	32,526.96		31,425.20
None of the above employees are "below a fair standard of efficiency" for the ratings under which they are severally employed.			
STEAM MACHINERY.			
For completion, repairing, and preservation of machinery and boilers of naval vessels, including cost of new boilers; distilling, refrigerating, and auxiliary machinery; preservation of and small repairs to machinery and boilers in vessels in ordinary, receiving and training vessels, repair and care of machinery of yard tugs and launches	2,190,000		2,190,000
For purchase, handling, and preservation of all material and stores; purchase, fitting, repair, and preservation of machinery and tools in navy-yards and stations, and running yard engines	1,200,000		1,200,000
For incidental expenses for navy vessels, yards, and the Bureau, such as foreign postage, telegrams, advertising, freight, photographing, books, stationery, office furnishings, and instruments	15,000		15,000
	3,405,000	3,405,000	3,405,000
EXTENDED TESTS OF MARINE STEAM TURBINES.			
For an extended series of tests, and for original investigation and research, in connection with the determination of the efficiency, economy, adaptability, and endurance of the steam turbine for naval purposes (submitted)	25,000	25,000	

Estimates of appropriations required for the service of the fiscal year ending June 30, 1905, by the Bureau of Steam Engineering, Navy Department—Continued.

Detailed objects of expenditures, and explanations.		Estimated amount which will be required for each detailed object of expenditure.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1904.
CIVIL ESTABLISHMENT.				
Navy-yard, Portsmouth, N. H.:				
One clerk to department	$1,200			
One messenger	600			
		$1,800.00		$1,800.00
Navy-yard, Boston, Mass.:				
One clerk to department	1,400	1,400.00		1,400.00
Navy-yard, New York, N. Y.:				
One clerk to department	1,400			
One writer	1,000			
One messenger	600			
		3,000.00		3,000.00
Navy-yard, League Island, Pa.:				
One clerk to department	1,200	1,200.00		1,200.00
Navy-yard, Norfolk, Va.:				
One clerk to department	1,300			
One messenger	600			
		1,900.00		1,900.00
Navy-yard, Pensacola, Fla.:				
One writer	1,000	1,000.00		1,000.00
Navy-yard, Mare Island, Cal.:				
One clerk to department	1,400			
One writer	1,000			
One messenger	600			
		3,000.00		3,000.00
Naval station, Port Royal, S. C.:				
One clerk to department	1,200	1,200.00		1,200.00
Navy-yard, Puget Sound, Wash.:				
One clerk to department	1,200			
One writer	1,000			
		2,200.00		2,200.00
Navy-yard, Washington, D. C.:				
One clerk to department	1,200	1,200.00		1,200.00
			$17,900.00	17,900.00
IMPROVEMENT OF PLANT.				
Navy-yard, Boston, Mass.:				
Necessary to furnish new power plant and a number of locomotive cranes required for handling heavy parts of machinery		75,000.00		60,000.00
Navy-yard, Norfolk, Va.:				
Necessary to furnish new and additional tools for pattern shop and foundry; also to furnish condensing apparatus for the new power plant, air compressors, and locomotive cranes		50,000.00		25,000.00
			125,000.00	85,000.00

Respectfully submitted.

C. W. RAE,
Engineer in Chief, U. S. Navy, Chief of Bureau.

The SECRETARY OF THE NAVY.

REPORT OF THE PAYMASTER-GENERAL OF THE NAVY.

CHIEF OF THE BUREAU OF SUPPLIES AND ACCOUNTS.

NAVY DEPARTMENT,
BUREAU OF SUPPLIES AND ACCOUNTS,
Washington, D. C., October 15, 1903.

SIR: I have the honor to present the report of the Paymaster-General of the Navy upon the operations of the Bureau of Supplies and Accounts, for the fiscal year ending June 30, 1903, accompanied by the estimates for the coming year, prepared in accordance with the Department's instructions of July 10, 1903, and tabulated statements, as follows:

A.—General financial statement.
B.—Statement showing expenditures of money and material at shore stations and objects to which applied.
C.—Statement showing operations of the naval supply fund to June 30, 1903.
D.—Statement showing the cost of maintenance of and improvements at navy-yards and stations.
E.—Statement showing the value of real estate and chattels and machinery plant at the several navy-yards and stations.
F.—Statement of payments through the Paymaster-General's Office on contract, open-purchase, and open-contract vouchers.
G.—Statement showing the value of supplies on hand July 1, 1902, the receipts from purchase and other sources, the expenditures during the year, and the balance on hand June 30, 1903.
H.—Statement of the value of stores received and expended on board ships in commission.
I.—Statement showing cost of maintaining ships in commission.
K.—Statement of public sales of Government property.
L.—Exhibit showing volume and distribution of business under the Bureau at the various home stations.
M.—Statement showing receipts and expenditures of provisions, contingent, clothing, and small stores, and balances on hand June 30, 1903. Also account of the clothing and small, stores fund for the fiscal year.
N.—Schedule of proposals received.

These statements cover all transactions involving expenditures for the naval establishment, and show in principal items as follows:

Total credits, including balance from last fiscal year	$158,856,189.52
Total debits	90,515,102.33
Leaving a balance of appropriations on June 30, 1903, of	68,341,087.19
Amount drawn from the Treasury	82,549,501.20
Expenditures on account of construction of new ships, including labor and material	21,807,999.53
Cost of repairs to ships and equipage, at home and abroad	5,695,543.48
Cost of maintaining ships in commission (other than receiving ships), including pay of officers and men, together with the value of subsistence or commutation thereof and incidental expenses and material expended	16,192,648.33
Cost of maintaining receiving ships, including pay of officers and enlisted men awaiting draft and discharge, together with value of subsistence or commutation thereof and incidental expenses	3,027,658.86
Expenditures on account of the Marine Corps	2,552,038.56
Cost to the Navy:	
Of the Light-House Establishment	75,818.90
Of the Fish Commission	71,442.71
For arming and equipping the Naval Militia of the several States, including material furnished	76,088.88

The deposits of savings by seamen during the year amount to.....	$479,674.23
And the repayments.....	188,766.14
Total amount to the credit of the fund on June 30, 1903, was.....	892,794.25
Interest paid at 4 per cent per annum upon repayment amounted to.	12,248.07

THE PAY CORPS.

During the past year considerable embarrassment was experienced from the lack of sufficient officers to perform properly the duties devolving on the Pay Corps; and, in order to meet the pressing demands of the service and to furnish reliefs for pay officers whose terms of sea service had expired or who had been condemned by medical survey, the Bureau was compelled to rearrange its roster frequently to the detriment of the public interests. Although Congress, at its last session, provided in the naval appropriation bill for a substantial increase in the Pay Corps, the law, as interpreted, has not yet brought the benefits expected, and the Bureau is therefore little better off with respect to its personnel than it was when the last annual report was submitted. The most liberal construction possible should, in my opinion, be given to the enactment which essayed to relieve the situation; and to the end that additional officers may be secured for duty I recommend that the vacancies existing in the grade of assistant paymaster be filled at once. Only young men of good standing and education should be selected for these positions, and I can not too strongly urge that business experience should be considered as an essential factor in determining the fitness of candidates for appointment into the corps.

PAY CLERKS.

No action has been taken by Congress regarding the recommendations contained in the annual report of the Paymaster-General for the year 1901 relative to pay of paymasters' clerks employed at Norfolk and at Mare Island, although the additional amount necessary for the increase in salaries was appropriated in the act making appropriations for the naval service for the year 1901. In order that these pay clerks may benefit to the extent contemplated, and with a view to establishing a suitable rate of pay for all clerks performing similar duties at the various yards and stations, it is recommended that Congress be urged to substitute the schedule of pay herein submitted for the rates now authorized under section 1556, Revised Statutes.

With regard to the status of paymasters' clerks, as described in the annual reports for the years 1900 and 1901, I desire to submit, further, that the character and amount of work performed by these officials are out of proportion to their rates of pay, when considered in connection with their standing in the service, the uncertainty of their tenure of office, the expenses incident to procuring uniforms and equipments, and their lack of opportunity for advancement. These officers are among the hardest worked in the Navy. They are subject to naval laws and discipline, and are the only class in the Navy who receive no recognition for long and faithful service. Apothecaries and other enlisted men have been made eligible for warrant rank, while pay clerks, who in many instances have served more years than any of the others mentioned, are debarred from the benefits of rank and continuous service.

To be a competent clerk a man must be a skilled accountant and a practical business man, though previous naval experience is not essential. At present their compensation depends upon the official rating of the ships to which they are attached, and not upon the complement of the vessel or the volume of work to be performed. A revision of their rates of pay would not only result in a meed of substantial justice being done to the more deserving clerks now in the service, but would also attract a most desirable class of men to this branch of the work.

I therefore earnestly recommend that the Department give its approval to the bill prepared and submitted by the Bureau under date of January 19, 1900, and that the following pay list be substituted in lieu of the compensation provided by Senate bill 1105, introduced last year by Senator Hale, to wit:

	Per annum.
For vessels or combination of vessels having a complement of—	
176 and less than 250 men	$1,000
250 to 349 men, and fleet clerks	1,100
350 to 449 men	1,200
450 to 549 men, and clerks on storeships	1,400
550 men and over	1,500
For clerks to paymasters of yards and receiving ships and for chief clerks to general storekeepers at—	
New York, Norfolk, and Mare Island	1,800
Boston, League Island, Washington, and Puget Sound, and for the clerk to the general inspector of the Pay Corps	1,600
Portsmouth, N. H., and Pensacola, Fla	1,400
All other home yards and stations	1,300
Foreign stations:	
Pay officer at Manila	1,800
Cavite—	
Paymaster of station	1,800
General storekeeper	1,800
Gunboats of the fleet	1,800
Receiving and station ship	1,800
San Juan, Guam, Honolulu, Tutuila, and Yokohama	1,600

PAY YEOMEN.

These petty officers constitute part of the pay officer's clerical force on board ship, and as such come under the observation of the Bureau. The pay provided for chief yeomen is $70 per month, which, under ordinary circumstances, would seem sufficient to secure the services of efficient men. Unfortunately, however, so many restrictions surround the attainment of the highest grade and pay that pay officers are seriously handicapped because of the indifferent qualifications of those enlisted and assigned for the express purpose of assisting them, when, as a matter of fact, the yeomen so employed are, during a greater part of their enlistment, really under training, and consequently unfit for the work which they are supposed to perform efficiently.

It is pointed out that all advantages of pay and position are nullified by the rule which requires a man to enlist as landsman and to remain a year in each of three lower grades before he can qualify for the position of chief yeoman. If the regulations were amended so as to throw open the recently prescribed examination for permanent appointments as chief yeomen to civilians and to persons in the Navy, irrespective of their length of service, men of good business ability and general aptitude could be secured, and the services of deserving

men now on board ship, whose talents are being diverted into other and less productive channels, might be advantageously utilized. Chief commissary stewards are selected without reference to previous ratings or length of service, and the same rule should undoubtedly obtain in the selection of chief yeomen for duty in the pay department.

THE NAVY RATION.

The new ration provided in the naval appropriation act for the year 1903 has proved of great benefit to the enlisted force of the Navy and has enabled the general messing system to be successfully inaugurated. The Government now subsists the men entirely, where formerly they were required to contribute to the support of the various berth deck messes—a system which led to many abuses and was a serious drain on the limited resources of the men.

STOREHOUSES.

Notwithstanding the urgent appeal of my predecessor for additional storehouses, no recent appropriations for this purpose have been secured. Of late years some improvements have been made at the New York Navy-Yard, but considerable work in the nature of new construction is necessary before this station can be regarded as fully up to service requirements. It is at this yard that supplies of every description are brought together for use aboard ship and for distribution among the other yards and stations, and special facilities should be provided for keeping and handling the large quantities of materials called for. Buildings Nos. 2 and 33, which must be utilized for the storage of most valuable property, should be reconstructed and fireproofed at an early date, for disaster to the entire naval service is invited by their present condition, which renders them liable to destruction by fire. Furthermore, an additional lumber storehouse is urgently needed and the timber sheds now in use should be rebuilt.

At the navy-yard, Norfolk, the storehouse, timber sheds, etc., are in a very crowded condition and there is great need for additional floor space for stores. At the present time, on account of the crowded condition of the buildings, stores must be piled in confusion, thus entailing considerable extra expense in handling. It is recommended, therefore, that a modern storehouse of fireproof construction, 125 by 250 feet and five stories high, be erected.

At the Washington yard the storehouse facilities are totally inadequate and valuable materials are left lying about in different parts of the yard exposed to the elements. Some supplies are, perforce, left in damp, unsuitable places, where they deteriorate rapidly, and many valuable articles have been injured in this way; hence a fireproof storehouse is, in my opinion, an absolute necessity. Expensive lumber, which should be under cover, is also piled about the yard in the open. Such material has to be kept on hand a long time to become seasoned properly, and a suitable timber shed should therefore be provided.

Additional buildings are likewise needed at many of the other yards and stations, though the necessity for such is not quite so apparent as those above mentioned.

THE NAVAL SUPPLY FUND.

In order that the Naval Committees of Congress may the more fully appreciate the importance of the naval supply fund as an economical factor in the naval establishment, form a clearer conception of what was intended to be accomplished when the fund was created and have a better understanding of its meaning in its broadest sense, and with a view to securing an enlargement thereof, I submit the following:

Pursuant to the recommendation of the Paymaster-General of the Navy, Congress, in 1893 (act approved March 3, 1893), caused the sum of $200,000 to be provided, which amount was to be carried to the credit of a permanent naval supply fund, as an experiment, with a view to determining whether or not such a permanent fund could be successfully administered so as to be made of practical utility. In this connection it will be noted that the money was not regularly appropriated, but was merely set aside in the Treasury for the purchase of supplies for the naval establishment to be reimbursed from current naval appropriations whenever the supplies were drawn from store for actual use.

The object of creating such a fund was to enable the Bureau to keep on hand at all times a stock of commercial articles for the use of the Navy, so that work could be expedited and delays to ships, incident to procuring supplies by purchase on emergency calls, avoided. It was established with a view also to inaugurating a central store system by which supplies in large quantities could be purchased by contract after public advertisement, thereby reducing purchases in the open market to a minimum.

The experiment proved a success from the moment it was put in operation, and its practicability was promptly and completely demonstrated. The fund proved popular throughout the service and a topic of discussion as to how it might become a saving factor in the internal economy of the Navy, and thus realize to the fullest extent the purpose for which it was originated. Upon the Department's recommendation Congress has from time to time augmented the fund, so that it has grown steadily and now operates with a working capital of $2,700,000, not a dollar of which was appropriated outright, it all having been provided by reappropriations and transfers of unexpended balances of other appropriations. Even with this amount the fund can not be made to fulfill properly its functions, as it is too small to permit of any portion of it being tied up in supplies that are "not active" or to carry a stock sufficient in quantity and variety to meet the recurrent demands of the service.

It was not until long after the fund was established that island possessions, foreign stations, and the maintenance of larger fleets abroad were contemplated. To meet these conditions, the necessity arose for keeping an adequate quantity of supplies afloat on board store ships for the home and other fleets, at San Juan for the combined squadrons in winter maneuvers, and at Cavite for that station and for the vessels of the Asiatic and China stations—thus spreading the fund out so thin and wide as to seriously curtail its usefulness as a whole, because of its inability, through lack of capital, to fully meet all requirements. This lack of capital leads to unjust criticism, and subjects the Bureau to annoying complaints, for which there appears to be but one rem-

edy—an increase in the naval supply fund. As stated in a recent communication to the Bureau:

> The manufacturing departments in the navy-yards are for the purpose of executing repairs and for building ships. Any method of carrying this out which will delay the ships will decrease the efficiency of the repairing department, decrease the efficiency of the yard, and consequently decrease the efficiency of the Navy. * * * To carry on repairs it is of prime importance that the necessary material should be on hand to do the work.

That the naval supply fund fails to meet every demand of this nature is evidenced by the numerous letters on file, all clamoring for a greater quantity and variety of stock. Owing, however, to the meagerness of the fund, the Bureau is unable to maintain at the different navy yards and stations a supply sufficient to meet all requisitions, and consequently many articles that might be economically purchased under contract have to be bought in the open market under the various Bureau appropriations. If the naval supply fund programme is to be carried to a successful issue, as its promoters intended, it should ultimately have available in its treasury not less than five to six million dollars upon which to conduct affairs. With such a capital it would be practicable to do away altogether with separate Bureau purchases and establish a central depot for the issue of supplies to every department of both yards and vessels, thus obviating many of the difficulties complained of and simplifying present methods.

It is believed that simplicity of organization and improvements in supply facilities will, by increasing and developing the naval supply fund store, result in making it the one general store available for the use of all departments upon payment for materials drawn; i. e., by transfer of appropriations.

Under existing laws and regulations there are three sources of supplies at every navy-yard, viz:

First. Account (A) general stock, which represents the stock purchased under the current appropriations of the different bureaus, and which is reserved for the exclusive use of the bureau having cognizance until the end of the fiscal year, when it reverts to common general stock; i. e., available for issue to any department.

Second. Account (B) increase of the navy stock, which represents materials purchased under appropriations for increase of the Navy. This is available for increase of the navy work alone and does not revert to common general stock at the end of the fiscal year.

Third. Account (E) naval supply fund, which represents all materials and supplies purchased under the fund and available for issue to any department upon repayment of the value of the stores drawn; hence the naval supply fund is self-sustaining, as all the issues from it are repaid from the regular annual appropriations. In other words, naval supply fund stock is actually sold, the fund being reimbursed as stated above, and the capital remaining at all times an asset of the Government in money or material.

If, therefore, the fund were large enough to carry stock sufficient for the needs of all bureaus, the accounts, general stock, and increase of the Navy could in time be abolished, for issues from the supply fund would then be made as required to any department and for any object upon transfers of appropriations.

The fund is, in my opinion, the basis of the only successful business system possible under naval requirements; but, as stated by my

predecessor in his annual report for 1902, a sufficient stock can not be maintained with the limited sum now authorized by law. Its constantly increasing benefits and utility emphasize the necessity of bringing the fund up to the sum suggested above, though only a part of the money asked for need be provided at the present time. The fund should, however, be speedily increased to $4,000,000, and I recommend therefore that Congress be urged to authorize an additional $1,300,000. This may be accomplished without direct appropriation, as in previous years, by reappropriating unexpended balances of appropriations not now required for the purpose for which they were intended originally. To further augment the fund in order to meet the demands of a constantly increasing service, I recommend that Congress authorize that for a period of five years to come the proceeds of the sales of all condemned and obsolete supplies, except clothing and small stores, ordnance materials, and old vessels, be carried to the credit of the naval supply fund instead of being covered into the Treasury.

ADVANCE PAYMENTS FOR SERVICES.

I renew the recommendations made by my predecessor in the last annual report of the Bureau regarding advance payments for services, and trust that steps may be taken to have section 3648, Revised Statutes, which prohibits the advance of public money, amended so that it will read as follows:

> No advance of public money shall be made in any case whatever except when required by commercial usage to secure performance, certificate to that effect to accompany vouchers rendered to the accounting officers of the Treasury. And in all cases of contracts for the performance of any service, or the delivery of articles of any description, for the use of the United States, payment shall not exceed the value of the service rendered or of the articles delivered previously to such payment.

* * * * * * *

SINGLE APPROPRIATION FOR MISCELLANEOUS CHARGES.

The attention of the Department is once more invited to the desirability of securing, if possible, a single appropriation from which charges for transportation of supplies and telegraphing in connection therewith may be paid. As stated in the annual report for 1898:

> A shipment of stores from one navy-yard to another or to a vessel may, and often does, embrace supplies for several departments, and though they go at the same time and by the same line of transportation it is necessary to prepare separate bills of lading in quadruplicate for each lot of stores, and vouchers in triplicate for the freight charges, under each appropriation concerned. In advertising for supplies the expense has to be prorated among different appropriations, which involves the preparation of an unnecessary number of vouchers, with the attendant amount of clerical labor. One set of bills of lading and one set of vouchers should suffice.
>
> The same condition exists with reference to telegraph bills, vouchers being prepared under each bureau appropriation and office of the Navy Department, when one voucher covering the entire monthly account of the telegraph company for the whole Department would answer every purpose.
>
> Were a single appropriation available for expenses of the character indicated, the accounts of the Department would be greatly simplified and a mass of papers now necessary obviated, resulting in the saving of valuable time and an immense amount of clerical labor, not only at navy-yards and stations, but in the Navy and Treasury Departments.

I therefore renew the recommendation that the contingent appropriation of this Bureau be so broadened in scope and increased in

amount as to cover all contingent expenses of this character common to the several bureaus, excepting only such as are properly chargeable to "Increase of the Navy" and "Pay, miscellaneous."

THE CLOTHING FACTORY.

The total value of the garments, etc., made in the naval clothing factory during the fiscal year 1903 was $685,761.98, which is double the amount of last year's product and the largest output in its history. During the year the plant and methods have been modernized, so that it is prepared to meet present or prospective demands. Many changes have been made in the direction of efficiency and expeditious handling of the work and an improved system has been introduced. The inspection of all articles manufactured has been more rigid, thus resulting in a marked improvement in the work of the factory operatives and consequently in the finished product delivered to the service. No difficulty is experienced in manufacturing 34,000 garments monthly, and by an increase of labor the number could be very readily increased to 45,000 a month, and with further addition to plant and labor to about 60,000, the probable limit of output in the space now occupied by the factory. The original defects in building No. 31 (the clothing factory) should be remedied without delay, so that it may be made practically fireproof.

INCREASE IN CLERICAL FORCE AND OFFICE ACCOMMODATION.

In conclusion, I beg to state that the immense volume of work incident to the handling of thousands of proposals, contracts, and requisitions, the great mass of correspondence, and the accounting for expenditures involving nearly $85,000,000, as shown by the accompanying statistical exhibits, has been accomplished by the Bureau only through the efficiency, fidelity, and zeal of its office force as a whole—officers and employees alike working under great disadvantages through lack of both room and adequate clerical assistance. The assignment of space in the recently acquired Mills Building has to some extent ameliorated these conditions; but the Bureau is still cramped and file and storage room is greatly needed. Furthermore, the clerical force is entirely insufficient to meet the requirements of the Bureau, and in order to keep the rapidly growing work from falling further in arrears many clerks perform habitually overtime, holiday, and night work, which should not be required or expected. I therefore recommend that the additional clerks for whom estimates have been submitted should be provided, as the increase asked for is sufficient only for present actual needs.

Very respectfully,

H. T. B. HARRIS,
Paymaster-General, U. S. Navy.

The SECRETARY OF THE NAVY.

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REPORT OF THE SURGEON-GENERAL OF THE U. S. NAVY.

DEPARTMENT OF THE NAVY,
BUREAU OF MEDICINE AND SURGERY,
WASHINGTON, D. C., *October 1, 1903.*

SIR: In obedience to instructions contained in Department's letter of July 11, 1903, I have the honor to submit a report of the Bureau's operations for the past year.

The report embraces a statement of the condition of the naval hospital fund, reasons for the increased estimates, matters relating to the personnel of the Medical Corps and to the hospitals, recommendations as to hospital ships, recommendations for a sanitarium for the treatment of tuberculosis, report on surgical operative work, hospital facilities for the Naval Academy, report on navy pensions, recommendations as to the grade of pharmacist, dentists, and women nurses, report on recruiting and receiving ships, recommendations as to Medical Corps representation on the general board and at meetings of medical associations, also estimates for the fiscal year ending June 30, 1905, the statistical report for the year, and, finally, reports of special sanitary, medical, and surgical interest.

NAVAL HOSPITAL FUND.

The condition of this fund is as follows:

Balance on hand July 1, 1902	$223,880.06
Transferred to the credit since July 1, 1902	260,903.20
Credit by appropriation for fiscal year 1903	40,000.00
Total	524,783.26
Expended since July 1, 1902	270,443.65
Balance on hand June 30, 1903	254,339.61

ESTIMATES.

The importance of a uniform increase in all general appropriations for the maintenance of the naval establishment in keeping with the growth of the Navy is apparent. Any enlargement of the personnel or of the number of ships and stations maintained must increase the number to be cared for by the Medical Department both on board ship and in hospital.

The estimates submitted herewith, providing as they do for the current expenses of a fiscal year that will not terminate for nearly two years from this date, should make provision for expenses equivalent to those of the present and allow for the additional expenses incident to the growth of the service in that time.

Under "Public Works" the Bureau has submitted estimates for the construction, extension, and renewal of hospital buildings at Norfolk, Va., League Island, Pa., Pensacola, Fla., Newport, R. I., Canacao, P. I., and Mare Island, Cal.

Most of the naval hospitals were built many years ago, and while repairs have been made from time to time for their preservation, they

should now be generally overhauled and renovated. Modern systems of plumbing, heating, and ventilating should be installed and operating rooms and elevators provided, such as are in use in the best hospitals.

The naval hospital at Norfolk, Va., built in 1827, ranks with that at New York as of the first importance in the number of patients cared for, and it is hoped will receive recognition by an appropriation for its renovation and enlargement.

The naval hospital at League Island is designed to replace the present hospital at Philadelphia, built in 1865 within the grounds of the Naval Home. The site of the existing hospital is unsuitable because it is too far removed from the navy-yard and receiving ship from which it receives most of its patients, and by reason of the surrounding railroad yards and factories.

The naval hospital at Pensacola, built in 1875, should be renewed and enlarged sufficiently to accommodate the patients of our fleets during winter cruises. It is the only naval hospital on the Gulf.

The original building of the naval hospital at Newport, R. I., was designed by another bureau for station sick quarters only, and was not of proper construction for hospital purposes. Additions have been made to it for the accommodation of a greater number of patients, but the fundamental plans are not in accord with modern hospital construction, and further appropriation for its enlargement is not recommended in the interest of economy or of result obtained. A new building, capable of expansion on proper lines, should be erected to meet the growing requirements of the station and service.

The appropriation made by act of July 1, 1902, $50,000 for a naval hospital at Canacao, P. I., has been found to be insufficient, owing to the fact that much more preliminary work was required in the preparation of the grounds, roads, wharves, etc., than was anticipated, and to the further fact that old Spanish buildings which it was contemplated could be utilized were found to be so dilapidated and demolished as to be practically useless.

The crowded condition of our several naval hospitals renders it desirable that quarters occupied by the medical staffs should be devoted to the accommodation of patients. The continuance of the appropriation made for two years past for the erection of quarters outside of the hospital buildings at Mare Island and New York is recommended for the erection of similar quarters at the naval hospital at Norfolk.

For the naval hospital, Mare Island, Cal., estimate is submitted for two small buildings:

(*a*) A mortuary building within the cemetery attached to the naval hospital is desirable, that proper facilities may be afforded in inclement weather for funeral services.

(*b*) A small building for the accommodation of the driver of the ambulance is urgently required. This employee must be on duty at all hours of the day and night, and should be provided with living quarters.

CHANGES IN THE PERSONNEL OF THE MEDICAL CORPS.

In order to meet the urgent need of the service for medical officers, and to provide for the future, Congress at its last session authorized an increase of 150 numbers in the Medical Corps, 25 of which are to

be appointed each calendar year. At the same time, by a wise distribution of this increase among the different grades, and a rearrangement of rank whereby rank for grade was established, it placed the Bureau in position to successfully compete with other Government services in attracting properly qualified physicians to the naval service.

Since the passage of the law, up to the end of the fiscal year 1903, 16 applicants have been successful in meeting the requirements of the examining boards, filling the vacancies caused by deaths, resignations, and retirements, and leaving 11 vacancies under the provisions of the new law. It is hoped that these 11 vacancies will be filled before the end of the calendar year. This is unprecedented in the history of the Medical Corps of the Navy which has heretofore filled with difficulty the usual vacancies resulting from retirements and casualties.

Acting assistant surgeons.—During the latter part of the year the demand upon the Bureau for medical officers increased to such an extent that it was not possible to meet it with the number constituting the medical corps, and it became necessary to resort to the expedient of appointing acting assistant surgeons for temporary service. On the recommendation of the Bureau to the Department, the President, taking advantage of the law of May 4, 1898, which provided for the appointment of 25 acting assistant surgeons for temporary service, appointed the number authorized, for a period of three years' service.

In making recommendations for these appointments the Bureau considered the future needs of the service, and, as far as practicable, such men were recommended for appointment as presented evidence of being competent to meet the physical and educational requirements of the permanent establishment. Four of the acting assistant surgeons have already passed successful examinations to fill vacancies created by the last Congress and have been commissioned, and the Bureau expects that others will be equally successful. By utilizing the acting list as, so to speak, a probationary list for the regular corps, the Bureau is enabled to become acquainted with possible applicants and is thus in a position to make a more intelligent selection, while the acting assistant surgeon is enabled, by his association with service requirements and often by educational advantages placed within his reach by his duties, to properly equip himself for permanent appointment. In view of the increased number of vacancies to be filled each year, the growing necessity for filling them, and the difficulties heretofore experienced in getting so many properly qualified physicians in the given time to take service in the Navy, the Bureau desires to fill vacancies in the acting list as they occur during the next year. This is made necessary from the fact that the full number of 25 acting assistant surgeons will be required for duty until at least one-half the increase in the regular establishment has been obtained.

Increase in grade of medical inspector recommended.—In the general enlargement of the Medical Corps authorized by the last Congress the Bureau's recommendation for an increase in the grade of medical inspector was disregarded. Since the adjournment of Congress the need of this increase has become more pronounced than when the recommendation was made by the establishment of two new fleets on the North Atlantic Station. It has been necessary to draw upon the first ten numbers of the grade of surgeon for assignments that properly belong to the medical-inspector grade. The Bureau, therefore, has to

renew its previous recommendation that the grade of medical inspector be increased by 10 numbers.

Titles of officers of the Medical Corps.—A dissatisfaction has existed for a long time among the members of the Medical Corps in regard to the titles which are given them in the different grades of the corps. The present titles convey no meaning as to military rank or importance of duty, and embarrassment is often the result when medical officers of the Navy are brought in contact with their fellows in civil life or other military services. Moreover, these titles are in a sense somewhat derogatory to the dignity of the office they represent, as, for example, "assistant surgeon" as applied to a professional man of 30 or more years who may be in charge of a department. The term "passed assistant surgeon" was originally applied to an assistant surgeon who had passed his examination for the grade of surgeon and was awaiting a vacancy, and no commission was issued in this grade. By time and custom it became fixed into a grade, and latterly a law was passed which completed its establishment as such. To most naval medical men it is distasteful to subordinate the professional title to the military one, but it is fully recognized, on the other hand, that a title which designates both the rank and grade is desirable. The Bureau recommends that Congressional action be asked for authority to rename the different grades of the Medical Corps now existing, as follows: In place of Surgeon-General, surgeon-admiral; and in the other grades, medical director to become surgeon-captain; medical inspector, surgeon-commander; surgeon, surgeon lieutenant-commander; passed assistant surgeon, surgeon-lieutenant; and assistant surgeon, surgeon-lieutenant (junior grade).

NAVAL MEDICAL SCHOOL.

The first session of the medical school organized under Department's order of May 27, 1902, for the instruction and training of newly appointed medical officers in professional branches peculiar to naval requirements and in the methods of naval work as applied to their profession and in general, was completed April 4, 1903, by the graduation of the first class of twelve members. The report of the president of the faculty on the session's work shows a most gratifying result in this almost experimental stage of the school's existence and fully justifies the Bureau in its inauguration of a system of education for the junior medical officers of the Navy.

The need of a preliminary course of instruction for the novitiate of the Medical Corps before taking up active duty was fully demonstrated in the class work, and already, in the few months since graduation that the members of the class have been actively employed, the value of this school training has been practically brought to the front.

The wisdom of the establishment of the school in Washington has also been satisfactorily demonstrated. The building of the Museum of Hygiene has, with some slight remodeling, proved peculiarly suited for school purposes. The laboratories are well situated and are modeled and equipped to equal any modern establishment of their class. The lecture room and other divisions of the school building are ample in size for the purposes of the school, without any encroachment on the space used for the museum proper. In order to provide for the large number of the next class, made possible by the increase in the medical corps authorized by the last Congress, it will be necessary to

make some additions to one wing of the building for the purpose of providing study and dressing rooms, and some increase in the equipment will be necessary. Another proof of the wisdom of the choice of Washington as the site for the school was shown by the fact that the city afforded the following thirteen gentlemen, prominent in professional, scientific, and educational circles, who, in a spirit of most gratifying interest, accepted the invitation to deliver lectures and give demonstrations before the class: Col. W. C. Gorgas, Maj. L. A. La Garde, Maj. W. C. Borden, First Lieut. James Carroll, and Dr. W. M. Gray, of the Army; Medical Director A. F. Price, of the Navy; Passed Asst. Surg. M. J. Rosenau and Dr. C. W. Stiles, of the Public Health and Marine-Hospital Service; Dr. L. O. Howard, of the Department of Agriculture; and Drs. S. S. Adams, G. M. Kober, C. W. Richardson, and A. B. Richardson.

The members of the naval examining board, consisting of Medical Director R. A. Marmion, Medical Director J. W. Ross, Medical Inspector J. C. Boyd, and Surg. A. C. H. Russell, have been utilized as a faculty, to which the school has been fortunate in having added Mr. E. P. Hanna, solicitor of the Navy Department, for the course in naval law; Lieut. D. L. Wilson, U. S. Navy, retired, in the department of signals, tactics, etc., and Passed Asst. Surg. T. D. Myers, U. S. Navy, retired, for the course in ophthalmology. Surg. E. R. Stitt, U. S. Navy, planned and superintended the construction and equipment of the laboratories, and has charge of the department of which they are a part. He is assisted by Hospital Steward E. R. Noyes, U. S. Navy, chemist of the Museum of Hygiene, who also conducts the course in general chemistry. From a review of this list of the faculty, it may be seen that the work of instruction has been accomplished with the assignment of but one officer of the active list for this specific purpose.

With the completion of the new naval hospital on the grounds of the Museum of Hygiene and Medical School, provided for by action of Congress, largely increased facilities will be added to the school for practical instruction. The Bureau anticipates that during the next six years it will be possible to assemble a class of from 35 to 40 members at each session, and the outlook is most promising for furnishing the service with well-trained and equipped medical officers to fill the corps up to the complement authorized by the Fifty-seventh Congress.

UNITED STATES NAVAL HOSPITAL CORPS.

The organization of this branch of the enlisted force of the Navy continues to give satisfaction. During the year the corps has been increased in keeping with the growth of the Navy and Marine Corps, and this increase has been obtained through enlistments from civil life of desirable young men and by transfers from other branches of the service of men who demonstrated an aptitude for this department of naval work, and who desired to enter the corps.

The plan of training established by the Bureau has now been in operation since August 11, 1902. In the first year 66 of the members of the Hospital Corps were given a course of training at the hospital corps school of instruction at the naval hospital, Norfolk, and on the 1st of September 35 more were graduated. This course comprises three months of instruction and drill in the following sub-

jects: Nursing, elementary anatomy, physiology, elementary hygiene, materia medica and pharmacy, bandaging and splints, first aid, discipline and drill. The members of the different classes with few exceptions have shown a commendable zeal in taking advantage of the opportunities afforded them by this school work, and the results as shown by the examinations and graduation exercises have been gratifying. After this course of instruction is completed, each graduate is assigned to duty at a naval hospital for a further period of practical instruction and to obtain experience in the application of the knowledge gained in the school sessions. They are then considered available for detail to stations and cruising ships. The Bureau has not yet perfected its plans for a uniform system of drill and instruction for the hospital corps on shipboard and at naval stations, but hopes to have it ready for the Department's consideration at an early date.

By Executive order of June 26, 1903, all chief petty officers of the Navy whose pay is not fixed by law and who have qualified for permanent appointment by examination are granted an increase in pay. As the pay of hospital stewards is fixed by law the provisions of this order can not be applied to them. The Bureau recommends, therefore, that the Department request legislation of Congress to amend the law fixing the pay of members of the Hospital Corps to effect a change whereby they may receive the benefits of Executive action as accorded to other men of the enlisted force of the Navy.

QUARTERS FOR SICK ON SHIPBOARD.

The Department's order of April 17, 1902, directing that plans for sick quarters of all vessels under construction and undergoing extensive repairs be submitted to this Bureau for review and recommendation, has resulted in many improvements in the arrangement and construction of sick quarters on board the latest vessels completed and those whose plans have been prepared. Operating rooms, modeled on the most advanced ideas of aseptic surgery, have been provided on the largest battle ships and cruisers, isolation compartments have been planned, and sick bays of a capacity proportional to the number of the crew to be cared for have been established. An improvement in the situation of sick quarters has also been brought about through the Bureau's recommendations on these matters. The old idea of placing the sick bay in the bows of the ship—the least advantageous place on a vessel for the treatment of those in need of quiet and repose—has been in a large measure laid aside. Another good result of the Department's action in this connection is, that by securing a uniformity of sick quarters, the Bureau has been able to provide uniform equipments in advance of the completion of the vessel, and has been enabled to allow a much more satisfactory outfit than would otherwise be possible.

* * * * * * *

HOSPITAL SHIPS.

The history of the evolution of naval affairs in the past year furnishes many instances in which the need of hospital ships has been demonstrated. This need has been particularly brought to the front by the Department's policy of carrying on extensive drill operations,

as inaugurated in the maneuvers of the combined fleets of the North Atlantic, South Atlantic, and European stations last winter in the waters of the West Indies. The Admiral of the Navy, in his report covering these operations, states that for a fleet and base having together a force of 10,000 men there should be associated with the base, among other provisions, a hospital ship. The fleet surgeon of the European squadron, who was the senior medical officer of the combined fleets, brings out forcibly in his sanitary report the need of, and the advantages to be gained from, the services of hospital ships in peace maneuvers.

The fleet surgeon of the North Atlantic Station is equally convinced of the value of this method of solving the problem of the care of the sick of the force afloat. The senior medical officers of the *Alabama* and of the naval station, San Juan, P. R., add their testimony to the same purport in their reports, drawing their opinion from the lesson of the winter's work. Over 150 of the men engaged in these operations would have been transferred to a hospital ship if one had been available, and this number does not take into consideration the large number of the crew of the *Panther*, badly infected with malaria from their service on the Isthmus. This vessel was so crippled from sickness that her services were lost to the drills, as it was imperative that she be taken north to land the sick of her force for treatment at a naval hospital. It is believed that this would not have been necessary if a hospital ship had been within reach, to which the infected members of her crew could have been transferred.

Though the Bureau had strongly advocated the addition of a hospital ship to the force assembled for these drills, one could not be provided, and the hospital facilities of the naval station at San Juan being wholly inadequate, it became necessary to ask aid of the Army, and 72 of the Navy sick were admitted to the army post hospitals on the island of Porto Rico. This necessitated much delay in the transfers involved, and, on account of the differences in the regulations and the methods of administration of the two services, was generally unsatisfactory, both to the Army and the Navy.

Though this country has taken the lead heretofore in the consideration of the subject of hospital ships, and was the first to provide them for active operations, it has fallen behind other nations in this respect since the war with Spain. The inspector-general of the British navy's medical corps stated with much pride at the meeting of the International Medical Congress, held in Madrid in April last, that the British navy is the only navy to-day that has a hospital ship permanently in commission, and that the *Maine* attached to the Mediterranean fleet is a great boon. He also states that eight of these ships have been planned, each with a capacity of, and completely fitted for, 200 patients. In its report of last year the Bureau advocated the building of two ships designed for hospital purposes, one to be stationed on the Atlantic and the other on the Pacific coast, to act in time of peace with the large squadrons, during the extensive evolutions, as hospitals and recreation asylums for debilitated members of the ships' companies; and during times of less activity to serve the purpose of ambulance ships, carrying the disabled from near and distant fleets, and from the island stations to naval hospitals at home. The Bureau has prepared plans for a model hospital ship of moderate size and speed, with a capacity of 300 patients. These plans are evolved from the teachings of the

work of the *Solace* and other hospital ships extemporized for the war with Spain. Such a ship, it is believed, will meet the requirements of a modern naval service and be as efficiently equipped as any shore hospital. The Bureau earnestly recommends that the construction of two of these vessels be provided for by Congress. These plans have been laid down by the Bureau of Construction and Repair, and each hospital ship is estimated to cost $1,630,000.

The following is a synopsis of the Bureau's plans for the proposed ship:

Length, 375 feet; beam, 60 feet; bilge keels; twin screws; speed, 15 knots; coal capacity, 1,800 tons; radius at full speed, 5,000 knots; at economical speed, 8,000 knots.

The hospital plant occupies 200 feet of the waist of the ship; the engines are placed in the after 125-foot section; the deck force with their paraphernalia occupy the forward 50-foot compartment.

There are three deck houses. The following structures are on the forward house: Pilot house, convalescent officers' sun room; on the middle, operating room skylight, isolation ward; on the after deck house, laundry, sun room for enlisted men, quarters for warrant officers. Within the forward deck house are quarters for the officers attached to the ship, with their mess room, and a mess room for convalescent officers. A dispensary, lavatories, water closets, and baths are located aft in this house. The operating room, four tables, is situated in the middle deck house, lighted and ventilated by a large skylight, and has seven rooms grouped about it—one for anesthesia, another for recovery, one for instruments, one for dressings, an X-ray room, a sterilizing room, and a surgeon's preparation room.

Abaft the operating room in the middle deck house are a suite of rooms for an officer of high rank, a bacteriological laboratory, a mess room for convalescent men, lavatories, etc.

In the after deck house is the galley; food reaches the ward decks aft by way of a dumb-waiter, forward, by wheeled conveyors, using the elevator for getting below. There are 5 suites of rooms for officers of high rank. The lower decks are reached by an elevator and by companion ladders located in the middle of the hospital section. The hospital section is divided into two parts by transverse passageways. The junior medical officers' quarters adjoin the wards on the first ward deck; the hospital corps' quarters adjoin the wards on the second ward deck. There are two ward decks with 10 feet between decks. In the hold are the distilling and refrigerating plants, cooling room, and autopsy room. Medical storerooms and linen lockers are also located here. The elevator runs to this deck.

There are four wards—one for officers, first ward deck, aft, containing 25 cots; three for enlisted men, one on the first ward deck, forward, 100 cots; two on the second ward deck, one of 96 cots, forward, the other, 78 cots, aft.

The following brief description of the forward ward, first deck, will answer for all. Ventilation—supply and exhaust, electric; in dining room, diet kitchen, water closets, powerful exhaust to determine direction of air currents. Air ports, and window ports, for light and ventilation. Cots, double banked in men's wards, single in officers', white enameled, metallic, fixed to deck below only. Forward are two quiet rooms, a bathroom with tubs and showers, and a surgical dressing and medicine room. Aft is a dining room for convalescents,

adjoining which is a diet kitchen with electric stoves, etc.; across the deck on the port side are the ward lavatories, water closets, urinals, and passageways leading to the wards.

There are two large steam disinfecting chambers, one for routine use in the laundry, the other for infected articles. The latter is reached by way of an isolated hatch, and is in the aftermost compartment on the first ward deck. A powerful disinfecting apparatus for the disinfection of ships in the fleet having contagious diseases on board, and quarters for the isolation of exposed members of their crews, as well as a plant for the disinfection of their infected effects, will be a very important feature of the ship.

The wounded will be brought on board from other ships by means of a specially devised apparatus not requiring a transfer to small boats, and roomy cutters towed by powerful steam launches will supplement the foregoing in conveying others alongside.

NAVAL SANATORIUM FOR TREATMENT OF TUBERCULOSIS.

The most enlightened governments of the world, and the medical profession in all countries, in working out the problem of the control of the greatest scourge to mankind in existence—the disease tuberculosis—have reached the decision that the sanatorium method of treatment and segregation offers the best solution. By this plan the surest promise of benefit is afforded to those afflicted, and the communities to which they belong are safeguarded against contamination.

The need of such an institution in the naval service has been demonstrated with increasing force during the past year. It had been necessary previous to 1902 to rid the service of its chronic consumptives by discharge to civil life, turning them loose to menace their home communities and to drag out their unhappy and short-lived existence as best they might. In the fall of last year arrangements were made through the courtesy of the War Department for the admission of the enlisted men and officers of the Navy and Marine Corps afflicted with tuberculosis to the Army general hospital at Fort Bayard, N. Mex. As many as 60 naval patients have been under treatment at this institution at one time, and the indications are that many more will be recommended for admission during the coming year.

While this plan has relieved the anxiety of the Bureau somewhat, and in a measure meets the immediate demands of the situation, it can scarcely be said to be the best solution of the problem. The management of so many of the naval force, away from the direct influence of their own officers, and without any easily attainable supply of naval clothing, stores, and of pay, has been more or less difficult and unsatisfactory. The officials of the Army in command of this institution, not being warranted in applying army regulations to naval men, and navy regulations not being under their control, have been placed in awkward and trying situations, and much correspondence has resulted. The Bureau is of the opinion that the needs of the Navy warrant the establishment of specially adapted sanatoria for the care of its consumptive sick at which the modern methods of treatment by outdoor life and regulated diet may be applied. The Bureau is of the opinion that these sanatoria can be most practically and efficiently established by the erection of specially constructed isolation pavilions as an adjunct

of some of the most favorably situated naval hospitals, and will recommend that such provision be made for the care of tuberculous patients of the Navy in connection with the remodeling of the hospitals at Norfolk and Pensacola.

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HOSPITAL FACILITIES FOR THE NAVAL ACADEMY.

The plans for a naval hospital at the Naval Academy were not decided upon until near the end of the fiscal year. Those mentioned in last year's report as being satisfactory entailed a much larger expenditure than the Department was willing to allot from the appropriations for the academy buildings. These plans have been revised and, it is believed, will now assure the erection of a building within the limit of cost which the Department has approved. The Bureau, however, is still of the opinion that its original estimate of $200,000 is not too much to allot to the construction of an adequate hospital for this station and one in keeping with the other buildings planned and in process of construction.

Pending the completion of a permanent structure, it is imperative that temporary provision be made for the hospital treatment of the sick of the station. The number of midshipmen has been almost doubled, the garrison of marines will shortly consist of 325 men and officers, and the enlisted force of the Navy on duty in the different departments numbers 140 men. There will also be at all times a large body of men attached to torpedo boats and other smaller vessels for which no hospital facilities are provided. It is estimated that approximately 1,400 people will be domiciled in the Naval Academy reservation during the coming session of the school, and the only hospital accommodation for this large number is represented by the old sick quarters, which have been unsatisfactory and a source of anxiety for some time, and which make no provision for the enlisted force.

The senior medical officer of the station has submitted a report calling attention to the inadequacy of the present provisions for the care of the sick, and making recommendations for the enlargement of the sick quarters as a temporary expedient to provide hospital quarters in a measure proportionate to the number of people dependent upon them. The Bureau is in accord with the views of this officer and urges prompt action in carrying out the recommendation contained in his report, that proper care of the sick may be assured for the coming session.

NAVY PENSIONS.

The following is a statement of the work performed by the pension division of the Bureau during the fiscal year ending June 30, 1903:

Pension cases remaining on hand June 30, 1902	15
Received during fiscal year ending June 30, 1903	1,759
Answered during fiscal year ending June 30, 1903	1,697
Remaining on hand June 30, 1903	77
Cases for board of medical examiners received and answered	359
Cases for retiring board received and answered	42
Reports of deaths received	277
Reports of medical survey received and acted upon	2,226
Cases from Civil Service Commission received and answered	62
Cases of physical rejection, transfer of patients, and miscellaneous letters received and answered	2,848

INCREASE IN THE GRADE OF PHARMACIST.

By the creation of the warrant grade of the Hospital Corps Congress made provision for the advancement of the members of this branch of the medical department of the Navy which has been a source of stimulation and encouragement to a deserving class of men. The number authorized, however, is not in keeping with the number of stations which from their size and importance call for the assignment of hospital corps men of the experience and standing only to be found in the members of this grade.

The Hospital Corps consists of approximately 700 members, and for this number there are only 25 places in the warrant grade, the highest position to which they can aspire. This holds out very little encouragement to the young men in the corps and offers little inducement for them to enter this field of naval work. All of the present list of pharmacists have from nine to thirty-one years' service to their credit, and it is only just to men of such long and faithful performance of duty that they be given the same benefits that are accorded to members of other warrant grades. It is therefore recommended that Congressional action be requested to provide for an increase of 25 in the grade of pharmacist, and that all laws in force or that may hereafter be enacted for the promotion and benefit of other warrant grades be made applicable to the grade of pharmacist.

DENTISTS FOR THE NAVY.

The experience of the past year emphasizes the wisdom of the recommendations made by the Bureau in its preceding report for the enactment of a law providing for the appointment of skilled dentists to be employed at the stations where men and boys are assembled and trained. At present dentistry is provided at the training station, Newport, on the receiving ship *Columbia*, at the Naval Academy, and at the naval station, Island of Guam, and arrangements are being made for like service on the receiving ships *Wabash* and *Franklin* and the training station, San Francisco. Hospital stewards who have training and experience in dentistry are assigned to these stations, with the exception of the Naval Academy, for which place Congress has provided for the employment of a dentist. This arrangement, while answering in a measure to the demands for work of this character, is not satisfactory to the Bureau and is neither just to the men nor pleasing to the dental profession. Congressional action, therefore, is again requested for authority to appoint under contract regularly graduated dentists, who shall be examined and selected under the direction of the Bureau of Medicine and Surgery and assigned to duty at the large naval stations at home and at those beyond the continental limits of the United States.

WOMAN NURSES FOR NAVAL HOSPITALS.

The attention of the Department is again invited to this subject. During the past winter the question involved in the consideration of this change in the administration of naval hospitals was given serious study from all points of view, and the conclusions arrived at were largely in favor of taking the departure from long-established custom

which it entailed. With the consent of the Department a bill was drafted for the approval of Congress providing for a corps of trained women nurses to consist of one superintendent nurse, 50 chief nurses and nurses, and as many reserve nurses as might be needed; but this measure failed of enactment. The Bureau recommends that Congress be again asked to consider the benefits to be derived by the sick of the Navy through the passage of a law of this character.

RECEIVING SHIPS AND TRAINING STATIONS.

The Bureau begs to again invite the attention of the Department to the inadequacy in point of capacity of the receiving ships of the service and to their unhygienic character.

The recruiting service of the Navy has been most successfully and energetically performed in the past year and as a result many more men and boys were assembled on all the receiving ships and at the training station at Newport than for which there were accommodations.

The following list shows approximately the degree of congestion:

Place.	Normal complement.	Greatest number.
New York (Columbia)	500	1,085
Philadelphia (Minneapolis)	500	1,460
Norfolk (Franklin and Richmond)	840	1,500
Newport:		
Barracks	400	1,490
Constellation	300	
Boston (Wabash)	560	775
Mare Island (Independence)	450	800

This overcrowding naturally had its results, and as the winter drew to a close reports of invasion by infectious diseases and of their epidemic character began to be received. As early as last fall the Bureau, recognizing the danger that threatened, warned the medical officers of the different stations to make early recommendations against exceeding the capacity of the quarters for the reception of recruits and to be prepared for the appearance of infection.

The *Franklin* and *Richmond* were reported infected with diphtheria early in March, and later with epidemic measles; the *Minneapolis* with cerebro-spinal meningitis, mumps, and measles, and the *Columbia* with scarlet fever, mumps, and measles. The training station at Newport returned a large number of cases of pneumonia through the late fall and winter, and in the early spring an epidemic of diphtheria broke out, while at the same time the station was more or less infected with mumps, measles, scarlet fever, and chicken pox. The training station at San Francisco, while not subjected to the same degree of congestion, suffered for want of a proper system for handling the incoming recruits and the station became infected with diphtheria, smallpox, and some of the lesser exanthemata. It became necessary to temporarily abandon the quarters at Norfolk, Philadelphia, Newport, San Francisco, and in a measure at New York, and at all these stations the crews were encamped. At San Francisco the apprentices were transferred to the quarantine station. At this time it became necessary to suspend recruiting.

The recruitment to keep the enlisted force of the Navy up to the authorized strength of 30,000 men will require in the future much

greater facilities for the reception of recruits while in transit to cruising ships than is provided by the present system of receiving ships, and supplementary barracks should be erected at all stations where recruits are received.

The Bureau takes this opportunity to repeat its recommendation in last year's report, which is expressed in the following words:

> The construction of barracks as recommended by the Department should be started at as early a date as possible, and the erection of these structures hastened to meet the rapidly growing demand of the naval service.

The lack of proper accommodations for recruits and the infectious diseases resulting, has caused the loss of some good men and boys, and it is hoped that provisions will be made as soon as practicable for the proper care of the newly enlisted men. Under the head of Infectious diseases recommendations are made by the Bureau which, if carried out, it is believed will reduce to a minimum the danger of future infection.

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MEETINGS OF MEDICAL ASSOCIATIONS.

One of the most valuable means by which the medical and surgical practitioner keeps in touch with the advances made in his profession is the periodical gathering of his fellows from all over the world in the different congresses that are being constantly called together for the study and discussion of subjects covering the whole field of medical and surgical science. That these opportunities for the exchange of ideas are being considered of more and more importance is shown not only by the increase in the number and size of these meetings but also in the widespread interest in their proceedings that is taken by medical men, as shown by the medical literature in all countries. The Bureau has continued its policy of recommending details of medical officers of the Navy to the most important of these meetings, and is satisfied that much benefit is derived not only by the officer whose fortune it is to be detailed but by the Medical Corps as a whole.

During the past year invitations were received and accepted from the following associations, and the officers named were given the privilege of representing the Medical Corps of the Navy at their meetings: American Medical Association, New Orleans, May, 1903, Medical Director R. A. Marmion, U. S. Navy, delegate; American Public Health Association, New Orleans, December 8–12, 1902, Medical Director John W. Ross, U. S. Navy, delegate; Association of Military Surgeons, Boston, Mass., May 19–21, 1903, Medical Director John C. Wise, U. S. Navy, and Surg. H. G. Beyer, U. S. Navy, delegates; Conference of State and Provincial Boards of Health of North America, New Haven, Conn., October, 1902, Medical Director John W. Ross, U. S. Navy, delegate; Congress of American Physicians and Surgeons, Washington, D. C., May, 1903, Surg. H. G. Beyer, U. S. Navy, delegate; General Sanitary Convention of American Republics, Washington, D. C., December 2, 1902, Medical Director G. P. Bradley, U. S. Navy, delegate; International Conference for the Prevention of Syphilis and Venereal Diseases, Brussels, Belgium, September 1, 1902, Medical Inspector E. Z. Derr, U. S. Navy, delegate; International Medical Congress, Madrid, April, 1903, Passed Asst. Surg. D. N. Carpenter, U. S. Navy, delegate.

Invitations have also been received from the following associations, and the officers whose names follow have been assigned as delegates: American Pharmaceutical Association, August 6, 1903, Pharmacist Frederick T. Gordon, U. S. Navy, delegate; International Congress of Hygiene and Demography, September 2–8, 1903, Brussels, Belgium, Surg. S. G. Evans, U. S. Navy, delegate; International Sanitary Conference, Paris, France, October 10, 1903, Surg. Frank Anderson, U. S. Navy, delegate.

Medical Director R. A. Marmion, U. S. Navy, in his report on the proceedings of the annual meeting of the American Medical Association, covers fully the work of the session, of which the following is a brief review:

The most important business of the first day's proceedings was the reading of the report of the committee on medical education. The committee consists of five members, one of them being the naval representative at the session, Medical Director Marmion, U. S. Navy. At the same meeting on this day the fact was brought up that a former Secretary of the Navy had granted permission to the association to erect on the grounds of the Museum of Hygiene a suitable memorial to Doctor Rush, of Revolutionary fame.

It was decided that the ceremonies attending the unveiling of the monument be held next summer, after the close of the session appointed for Atlantic City. An appropriation of $500 was made for this purpose. Steps were also taken to provide for the erection of a suitable memorial to the late Maj. Walter Reed, U. S. Army. The committee on medical education in its report brought out the fact that the American Medical Association was primarily organized with a view to promoting the subject of higher medical education in this country. The report contrasted the state of medical education in this country with that in various European states where, after preliminary classical and scientific studies, from four to six years of study in the medical branches are required of a candidate for the degree of M. D. While in the United States the requirements of some of our medical schools are up to the foreign standard, the average is distinctly below it, taking the co .eges throughout the length and breadth of our land into consideration. In view of the peculiar form of our Government, by which we are unable to obtain Federal legislation to control medical education in the different States and make a standard of requirements uniform throughout the country, efforts to raise the standard of medical education can be most effectively made through the agency of the association. The committee believes that the work of raising the whole standard of the medical profession in America will be best accomplished, not by university presidents or State legislatures, but by the medical profession itself through its county, State, and national associations.

Among the recommendations made by the committee was that a standard be adopted by the association in the matter of the length of time to be devoted to the study of medicine by candidates for a degree in the colleges of the country and in the requirements for admission to these colleges. It was recommended that candidates for admission to a medical school be required to pass an examination equivalent to those admitting to our standard universities, and that the minimum of study for a candidate for a degree in medicine be established as four terms of at least seven months each. These requirements should

become effective in five years and apply to graduates of 1908 and after that date, sufficient notice being thus given to all medical schools of the country to enable them to change their curricula to meet these requirements. As one means of making these plans for the improvement of the standard effective, it was suggested that the association submit this proposed change to the various county and State medical societies with the request that they embody them in their several constitutions. Other important recommendations were made, such as the appropriation of a sufficient sum of money for the use of the committee in furthering the adoption of the measures advocated, the dissemination of the information that a standard had been adopted, etc.

The report of Medical Director George P. Bradley, U. S. Navy, on the Sanitary Convention of American Republics, held in Washington, D. C., on December 2, 1902, shows that the conference was principally concerned with questions of hygiene and quarantine. There was considerable discussion in regard to the mosquito's relation to the transmission of yellow fever, and as to whether this was the sole agent of transmission. Accounts were given of various quarantine stations, and the general subject of maritime quarantine in the Southern States was thoroughly treated. A good deal of attention was given to the subject of the sanitation of the Isthmian Canal. Steps were taken to insure the collection of valuable data relative to the sanitary condition of the various ports in the countries represented, to the outbreak of epidemics, and all matters related to public health and quarantine.

In the report of Medical Director John W. Ross, U. S. Navy, on the work of the Conference of State and Provincial Boards of Health of North America, he brings out the fact that the ætiology and mode of transmission of yellow fever were discussed at great length; resolutions were passed censuring the California State health authorities for concealing the existence of bubonic plague in San Francisco; papers were read on various topics pertaining to infectious diseases and the methods of arresting their spread, and the subject of vaccination and the production of vaccine virus was considered and voted upon.

Passed Asst. Surg. D. N. Carpenter, U. S. Navy, has submitted a most valuable report on the proceedings of the Madrid meeting of the International Medical Congress, and especially of that section dealing with military and naval hygiene, which is published in that part of the Surgeon-General's report reserved for special reports.

The Navy was honored at the meeting of the Association of Military Surgeons by the election of one of its officers to the presidency of the association. Medical Director John C. Wise, U. S. Navy, who, at the meeting of the previous year was chosen first vice-president, was at this session given the highest distinction in the gift of this body and elected president.

Medical Director E. Z. Derr, U. S. Navy, submitted a valuable report on the International Congress for the Prevention of Syphilis and Venereal Diseases. The programme outlined for the deliberation of this congress embraced the following points: Public prophylaxis, individual prophylaxis, and statistics of venereal diseases. Papers relating to these subjects were submitted and discussed, and in the discussion the secondary questions relating to methods of vaccination and civil and criminal responsibility for transmission of venereal diseases were considered. At the final session a set of resolutions covering the work of the congress was adopted.

BOOK OF INSTRUCTION.

The need of a book of instruction for medical officers, brought to the attention of the Department in the Bureau's report for 1902, becomes more and more evident with each succeeding year. The large yearly increase in the Medical Corps created by the action of the last Congress, bringing into the service a greater number of young medical men unused to service methods than heretofore, emphasizes this need. The regulations barely outline the duties of medical officers, and the instructions contained therein are so distributed as to be found with difficulty by those unfamiliar with its arrangement. A book of instruction, planned to explain the regulations and to give detailed information in all matters pertaining to the duties of medical officers, with special reference to enlistments and pensions and the keeping of accounts and records, is in preparation under the supervision of the Bureau, and will be ready in a few months for the Department's consideration.

SURG. FREDERICK ALEXANDER HESLER, U. S. NAVY.

The Bureau desires to record in this report its appreciation of the services of a brave and meritorious officer of the Medical Corps, who lost his life in his faithful attention to duty. Surg. Frederick Alexander Hesler died on the 11th day of March, 1903, at sea on board the royal mail steamer *Empress of Japan*, while en route to the United States Naval Hospital, Yokohama, Japan, where he was proceeding for treatment for disease of the liver contracted in line of duty from exposure incident to nearly three years of arduous and faithful service in the debilitating climates of Guam and the Philippines. He was buried on the 18th day of March, 1903, with military honors, in the Bubbling Well Road Cemetery, Shanghai, China, the interment being in charge of the officers of the U. S. S. *Wilmington*, then in that port.

Surgeon Hesler's record is one of conscientious and efficient service especially so in the new and untried fields of labor in the stations of the East brought under the administration of the Navy through the war with Spain. His devotion to duty at Guam and later at Cavite, at which place his work was especially prominent in the widespread cholera epidemic of the summer of 1902, deserves the highest commendation. His prolonged duty in the Tropics, made necessary by the exigencies of the service, and his unremitting attention to his professional labors, even when stricken with a serious illness, were largely contributory to his untimely death, and it may be truthfully said that his life was given to his country in the performance of and attention to his duty.

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CONCLUSION.

In concluding this report the Bureau wishes to commend the Medical Corps of the Navy to the Department, not only for its general work, but for its zeal in contending with infectious diseases both ashore and afloat. The shortage of medical officers and the increased amount of work have made the duties of the corps unusually arduous, yet the year's record is one of general advancement along professional lines and of duty well and cheerfully performed. The provision made by

the last Congress for a generous increase in the numbers of the corps gives assurance that the pressure from overwork will soon be relieved and the demands made upon the corps will, in a short time, resume normal proportions.

Very respectfully,

P. M. RIXEY,
Surgeon-General United States Navy.

The SECRETARY OF THE NAVY.

REPORT OF THE COMMANDANT OF THE UNITED STATES MARINE CORPS.

HEADQUARTERS U. S. MARINE CORPS,
Washington, D. C., September 23, 1903.

SIR: I have the honor to submit this, my last report before being placed upon the retired list, October 3, 1903, in conformity with law, of the condition and service of the United States Marine Corps during the past year.

Since the date of my last report I have made a personal inspection of the marine barracks at the navy-yards, Portsmouth, N. H., Boston, Mass., Brooklyn, N. Y., League Island, Pa., Norfolk, Va., Pensacola, Fla., Mare Island, Cal., and Bremerton, Wash.; at the United States Naval Academy, Annapolis, Md.; at the naval training stations Newport, R. I., and San Francisco, Cal.; the naval station Port Royal, S. C.; of the marine barracks, Sitka, Alaska; of the recruiting offices at Boston, Mass., New York, N. Y., Philadelphia, Pa., San Francisco, Cal., and Seattle, Wash., and of the assistant paymaster and acting assistant quartermaster's office at San Francisco, Cal.; and have visited St. Louis, Mo., for the purpose of selecting a site for the proposed camp of marines in that city during the Louisiana Purchase Exposition during the summer of 1904.

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THE PHILIPPINE ISLANDS.

At the date my last annual report was submitted to the Department Col. James Forney, U. S. Marine Corps, was in command of the First Brigade of Marines at the naval station, Cavite, P. I., he having relieved Lieut. Col. M. C. Goodrell, U. S. Marine Corps, from command of the brigade on January 26, 1902, the latter officer having been ordered to the United States. Colonel Forney, having been condemned by a board of medical survey, was invalided home on January 22, 1903, and Col. F. H. Harrington, U. S. Marine Corps, was immediately detached from command of the marine barracks, navy-yard, Mare Island, Cal., and ordered to command the First Brigade of Marines. Colonel Harrington sailed from San Francisco, Cal., for the Philippines on the army transport which sailed February 28, 1903, and is at present commanding the brigade.

In pursuance of my previously established policy to have all officers and enlisted men on duty in the Philippines returned to this country after they have completed two and one-half years' service there, or as soon thereafter as practicable, there have been returned to the United

States since the beginning of the calendar year 1903, 13 officers and 402 enlisted men. During the same period 23 officers and 617 enlisted men have been sent to the Philippines, as follows:

On January 31, 1903, a battalion consisting of 14 officers and 309 enlisted men, under the command of Maj. George Barnett, U. S. Marine Corps, sailed from San Francisco, Cal., via the army transport *Thomas*.

On September 1, 1903, a battalion consisting of 9 officers and 308 enlisted men, under the command of Capt. E. R. Lowndes, U. S. Marine Corps, sailed from San Francisco, Cal., in an army transport.

It will thus be seen that 23 officers and 617 enlisted men of the corps have been sent to the Philippines.

Both of the above-mentioned battalions were sent from the Atlantic coast to San Francisco, Cal., on special trains of the Chesapeake and Ohio Railway Company, and went through on time without mishaps of any kind. Each of these trains was equipped with a Pullman car for the officers, tourist sleeping cars for the men, and a dining car in which all were served with three good meals a day. A naval surgeon accompanied each of the battalions for the purpose of rendering medical assistance in case it was required.

The battalion of 13 officers and 402 enlisted men which was returned to the United States, as hereinbefore mentioned, sailed from Manila February 6, 1903, on the army transport *Sheridan*, and arrived at San Francisco, Cal., on March 3, 1903. The battalion was under the command of Capt. (now Maj.) Franklin J. Moses, U. S. Marine Corps, and with the exception of 2 privates, who were sent to the naval hospital, Mare Island, Cal., and 18 enlisted men who were enlisted on the Pacific coast, was sent directly from the transport to the train for transfer east. The battalion made the transcontinental trip without incident of note, and the officers and men composing it were distributed among the eastern posts of the corps as soon as practicable, effort being made to send them, so far as the interests of the service would permit, to the stations to which they desired to be assigned. The health and condition of the men seemed to be excellent.

The detachment of 9 officers and 308 enlisted men which sailed from San Francisco, Cal., for Manila, on September 1, 1903, is designed to relieve a like number of officers and men whom the commander in chief, United States naval force, Asiatic Station, has been requested to send to the United States in the U. S. S. *Solace*, and when this has been done it will result in bringing home and replacing all officers and men of the corps who have served two and one-half years or more in the island possessions in the Far East.

In conformity with a previous recommendation from me, it is hoped that the tour of service in the Eastern possessions may be limited to two years, that being considered to be the maximum length of time, in the interest of efficiency, which officers and men should be required to serve in the islands.

A communication was received from the Department under date of July 21, 1903, directing that a force of 350 marines be stationed at Cavite, 100 at Olongapo, 25 at Isabela de Basilan, and 25 at Pollok, making a total of 500 men at these four stations, and in addition to these, that an expeditionary force of 1,000 men be stationed at Olongapo for such service as may be required of them, thus making a grand total of 1,500 enlisted men required in the Philippines.

In accordance with this order I have, as hereinbefore stated, sent a battalion consisting of 9 officers and 308 enlisted men to the Philippines via the army transport which sailed from San Francisco, Cal., for Manila, on September 1, 1903. After the arrival of these men at Manila and the return to the United States of the officers and men, via the U. S. S. *Solace*, who have completed the required term of service in the islands, there will remain a total of about 1,000 marines there. The additional 500 men necessary to complete the force of 1,500 men required in the Philippines will be sent forward as rapidly as possible.

In view of the large number of men to be stationed at Olongapo, the quartermaster of the First Brigade of Marines recommended that a cold-storage equipment and ice plant be installed at that station for the health and comfort of the men. This recommendation being approved by the commanding officer of the brigade and the admiral of the station, I have directed the quartermaster of the corps to include an item of $5,000 in his estimates for the next fiscal year for the above-mentioned purpose.

There being no quarters available at Olongapo which can be utilized for the use of the expeditionary force which is to be stationed at that place, it will be necessary to provide temporary quarters for their use, and every effort will be made to make the men as comfortable as possible. If it is the intention of the Department to keep this force at Olongapo as a permanent feature, suitable barracks should be provided.

The quartermaster of the First Brigade of Marines, in addition to his duties as such, has charge of the accounts of the brigade, and performs the duties of acting assistant paymaster. This is entirely too much for one officer to be required to do, and it is my intention to send one of the recently appointed assistant paymasters of the corps to the Philippines in the near future for duty as paymaster of the brigade, which will relieve the quartermaster of the brigade of this portion of the work and admit of his giving all of his time to the duties of the quartermaster's department in the islands.

It is also my intention to assign one of the recently appointed assistant adjutant and inspectors of the corps to duty with the brigade in a short time.

The health of the command in the Philippines during the past year has been as good as could be expected in that climate.

* * * * * * *

PROMOTION OF OFFICERS.

Boards have been ordered and are now in session at Washington, D. C., Mare Island, Cal., and Cavite, P. I., for the purpose of examining officers for promotion in consequence of the recent legislation of Congress increasing the personnel of the corps.

APPOINTMENT OF OFFICERS.

On June 1, 1903, pursuant to directions from the Secretary of the Navy, an examining board was convened at the marine barracks, Washington, D. C., for the purpose of examining civilian candidates and noncommissioned officers designated for examination by the Secretary of the Navy to fill vacancies in the corps created by the act of Congress approved March 3, 1903. As a result of said examination

the following candidates, having fulfilled all the requirements, have been commissioned: Second Lieuts. Charles F. Williams, Nelson P. Vulte, Harrison T. Swain, Percy F. Archer, Seth Williams, Gerard M. Kincade, Frederick C. McConnell, Frederic Kensel, Hugh M. Howard, William A. Howard, Elias R. Beadle, Arthur B. Owens, Eugene P. Fortson, Robert O. Underwood, Jesse F. Dyer, Clarence S. Owen, Maurice V. Campbell, James J. Meade, Richard B. Creecy, Charles J. E. Guggenheim, and Alexander B. Mikell.

The young men designated for this examination were selected by the Secretary of the Navy with great care, and the result of this careful consideration was shown by the high percentage attained by the successful candidates. Among the candidates there were a number from the different military colleges throughout the country, and five of those mentioned above, namely, Second Lieuts. Elias R. Beadle, Eugene P. Fortson, Robert O. Underwood, Clarence S. Owen, and Charles J. E. Guggenheim, were selected from the worthy noncommissioned officers of the corps, and these young men promise to make excellent officers.

I am pleased to say that it was not a mistake to enact a law which allows promotion from the ranks, as all the officers in the Marine Corps appointed from this source have turned out well, and it has been the means of rewarding worthy noncommissioned officers.

A board has been ordered to convene at the marine barracks, Washington, D. C., on September 15, 1903, for the purpose of examining certain candidates for appointment as second lieutenants in the corps, who have been selected and designated for examination by the Secretary of the Navy.

MILITARY TOURNAMENT, MADISON SQUARE GARDEN, NEW YORK.

Under date of April 2, 1903, the Assistant Secretary of the Navy referred to this office a communication from Col. George R. Dyer, president of the Military Athletic League, requesting that a company of marines be detailed to take part in the military tournament to be held at Madison Square Garden, New York, during the week from April 27 to May 2, 1903. The Department having approved of the detail of such a company, I directed the commanding officer, marine barracks, navy-yard, New York, to detail and drill a company of marines to participate in the tournament. This company, under command of First Lieut. A. S. Williams, U. S. Marine Corps, represented the Marine Corps most creditably on this occasion, and secured high praise from the authorities of the Military Athletic League.

PARADE OF 22D OF FEBRUARY AT ALEXANDRIA, VA.

Pursuant to directions received from the Secretary of the Navy, a battalion of marines, under command of Capt. Henry Leonard, U. S. Marine Corps, consisting of two companies, was detailed from the two posts of the corps in Washington, D. C., and ordered to proceed to Alexandria, Va., for the purpose of participating in the parade at that place on February 22, 1903. Such portion of the Marine Band as was not engaged in furnishing music for the Sons of the Revolution, and all the field music that could be spared from the marine barracks, Washington, D. C., were also ordered for duty with this battalion.

FIRE AT THE NAVY-YARD, LEAGUE ISLAND, PA.

A fire having broken out on the tug *Harry Steer, jr.*, of the American Dredging Company, lying in the reserve basin at the League Island Navy-Yard, at 1.35 o'clock, on the morning of August 3, 1903, all the marines at the barracks, with the exception of the necessary guards, were hurried to the scene. On their arrival, about five minutes later, it was found that the tug was lying in mid-stream, where the men belonging to it had permitted it to drift. Three marines got into a boat and rowed out to the tug, from which they brought a line to the shore. The tug was then hauled alongside of a float between the shore and a dredge. The employees of the company owning the tug warned the marines not to go aboard it, informing them that there was a considerable amount of coal oil on board of her. Regardless of this, however, a bucket line of men was formed until the yard engine could be brought to the scene. By their combined efforts the fire was extinguished after a little over an hour's work. The officer of the day reports that all of the marines engaged showed an eagerness to confront personal danger in their effort to save private and public property, and the naval constructor of the station particularly invites attention to the excellent service performed by Private Raleigh Duty, U. S. Marine Corps.

COLLISION OF THE FALL RIVER LINE STEAMERS PLYMOUTH AND TAUNTON.

At midnight, on March 19, 1903, the Fall River Line steamer *Plymouth*, en route to Fall River, Mass., from New York, N. Y., collided with the steamer *Taunton* of the same line. On board the *Plymouth* were 75 marines, under command of Capt. Theo. H. Low, U. S. Marine Corps, changing station from the marine barracks, navy-yard, New York, to the marine barracks, navy-yards, Boston, Mass., and Portsmouth, N. H. First Lieut. W. C. Harllee, U. S. Marine Corps, was also on duty with the detachment. At the time of the accident most of the marines were asleep, occupying all of the berths under the forecastle deck—10 of the marines composing the detachment having berths aft. The *City of Taunton* struck the *Plymouth* abreast of the forward compartment occupied by the marines, carrying away a great part of the starboard side, covering up under a large amount of the débris in the compartment, several of the men who occupied berths on that side. The water rushed in rapidly, and the men had apparently little time to get on deck before the whole compartment was flooded. The sinking of the *Plymouth* was only prevented by a transverse bulkhead.

The marines, clothed in their underwear, were immediately ordered on deck, all being cool, ready, and eager to carry out intelligently any instructions given. The commanding officer reports that they rendered much assistance in quieting the passengers, procuring and adjusting life-preservers, keeping back the crowd from the scene of the accident, and in clearing away the boats. In a letter to the commanding officer, marine barracks, navy-yard, Boston, Mass., Capt. J. W. Miller, general manager of the Fall River Line, writes as follows:

My investigation of the *Plymouth-Taunton* accident, which occurred on March 20, shows that the marines on board the *Plymouth* behaved with their usual discipline and materially assisted to calm the other excited passengers. As an ex-naval officer,

as well as general manager of this line, please permit me to express my appreciation to the officers and men of the detail of their conduct under the trying circumstances of that night.

I addressed letters of commendation to the commanding officers of the posts to which these officers and men were transferred, expressing my gratification at the conduct of those concerned. The following officers and men of the detachment were mentioned as especially deserving of commendation: Capt. T. H. Low, commanding, First Lieut. W. C. Harllee, Q. M. Sergt. John G. Edwards, First Sergt. Thaddeus P. Shaw, Sergt. Michael Maloney, Corpl. Frank E. Abbott.

MARINES LANDED IN SANTO DOMINGO.

On April 1, 1903, a detachment of 29 marines, under command of First Lieut. Richard G. McConnell, U. S. Marine Corps, was landed from the U. S. S. *Atlanta*, at Santo Domingo City for the protection of American interests. The detachment remained ashore for twenty days, and the officer and men performed their duty in an exemplary manner, as indicated in the report of Commander W. H. Turner, U. S. Navy, commanding the U. S. S. *Atlanta*, which reads as follows:

During the whole of the stay ashore (twenty days) the behavior of the marine guard of this ship was excellent in every way. There was not a single infraction of discipline, and the consul-general, in whose house they were stationed, spoke to me in warm praise of their quiet and orderly bearing.

LOUISIANA PURCHASE EXPOSITION.

On March 6, 1903, the president of the Louisiana Purchase Exposition, St. Louis, Mo., addressed a communication to the Secretary of the Navy, in which he requested that a battalion of 200 marines be encamped at St. Louis during the summer of 1904, coincident with the Louisiana Purchase Exposition at that place. Under date of March 21, 1903, the Department directed me to take the necessary steps looking to the detail of a battalion of 200 marines, with the usual number of officers, for duty at St. Louis during the summer of 1904, and in this connection the Department further directed me to proceed to St. Louis on the occasion of the meeting of the Government Board in that city on May 1, 1903, for the purpose of selecting a suitable camp site.

In compliance with this order I proceeded to St. Louis, when the Government board met in that city on the occasion of the dedicatory exercises on May 1 last, and the matter of the selection of a site was gone into. The representative of the Navy Department, Mr. B. F. Peters, having been appointed a subcommittee by the board, I accompanied him to the grounds, and the matter of selecting a site for the marine camp, and the necessary buildings in connection therewith, was taken up. As the result of a thorough examination of the various sites available, a camp ground was selected adjacent to the Liberal Arts building, and but a short distance removed from the United States Government building, where the principal work of the marines will be done. The ground selected as a site is particularly desirable by reason of its location and its general adaptability for the purposes of a marine camp.

The president of the exposition company and the director of works have agreed with me to have this site leveled, depressions filled, and the ground put in thorough condition for its proposed employment.

It is my purpose, so far as is possible in the time which I will remain on the active list, to bend every effort toward insuring the sending to the exposition of a representative battalion of marines, and of the erection and maintenance there of a camp which shall be a model in every respect.

THE BATTALION ON THE ISTHMUS OF PANAMA.

On September 11, 1902, orders were issued to assemble a battalion at the navy-yard, League Island, Pa., to sail from there for the Isthmus of Panama in the U. S. S. *Panther*, and to be landed at the latter place for the protection of American interests, should such action be found to be necessary. The battalion consisted of four companies, aggregating 325 enlisted men, 16 marine officers, and 1 naval surgeon, the whole being under the command of Lieut. Col. Benjamin R. Russell, U. S. Marine Corps.

The battalion, fully fitted out for field service, embarked on the U. S. S. *Panther* on September 14, 1902, about 6 p. m., sailing from the navy-yard the same day. Attention is invited at this point to the fact that, although it was necessary to assemble these men from four different posts, they were ready, thoroughly equipped, and had left port twenty-four hours ahead of the time designated by the Department.

The battalion arrived at Colon on the morning of September 22, and was disembarked on the following day.

In obedience to an order of the senior officer present, the battalion was landed for the purpose of protecting the plant, property, lives, and liberty of the Americans and other peaceable employees connected with traffic and transit across the Isthmus. One company of 80 men, under command of Maj. George Barnett, U. S. Marine Corps, was left at Colon, while the other three companies, under command of Lieutenant-Colonel Russell, were directed to proceed to Panama and occupy the railroad station there, and such wharves as might be necessary.

On October 15, 1902, Lieutenant-Colonel Russell was ordered by the commander in chief of the United States naval force on the Pacific Station to command all United States forces on shore. Every effort was made and every precaution taken in the interest of the health and comfort of the command, and as a result of the attention to the diet and drinking water used by the command, as well as to their proper quartering, so far as was possible, there was comparatively little sickness, considering the prevailing conditions.

The duty of the battalion consisted in furnishing train guards, under the command of officers, for trains leaving Panama and Colon, the guards changing trains at a point halfway across the Isthmus, and returning to their respective stations. A guard of 20 men was maintained at the railroad station at Panama. This post was continued until October 19, when it was relieved by order of the commander in chief, the conditions at Panama having quieted down, and it being considered dangerous to the health of the men to quarter them in close proximity to the barracks of the Colombian soldiers, who did not live under very desirable or sanitary conditions. Dysentery, yellow fever, and malaria ran rife among the Colombian troops.

In two instances the marines had slight difficulties with the Colombian forces, and serious situations were averted only by the tact displayed

by the marine officers in command on these occasions. On September 24 one of the passenger trains from Panama to Colon was threatened by a force of about 150 armed insurgent soldiers at the railroad station at Empire. They attempted to board the train and seize a Colombian colonel who was on board, the latter being in civilian clothes. Under the orders of the officer in charge of the train, First Lieut. B. F. Rittenhouse, U. S. Marine Corps, this attempt was resisted and prevented, and a Colt automatic gun was brought to bear on the insurgents. It was not necessary to open fire, however, although some of the boarding party were injured by the butts of the marines' rifles. Colonel Russell reports that "a serious difficulty was prevented only by the discipline of the marines, and the judgment and coolness of the officer in charge."

On October 29, 1902, the commanding officer of marines learned that, contrary to standing orders, the railroad officials had sent three carloads of guns and ammunition from Colon to Panama and were about to unload them at the station at the latter place. A section of marines, under command of Capt. Dion Williams, U. S. Marine Corps, was immediately dispatched to seize the guns and ammunition and to bring the cars to the wharf occupied by the battalion. Upon his arrival Captain Williams found the station and platform occupied by a company of 60 Colombian soldiers who had established guards over the three cars in question. The Colombian officer in charge having refused, in answer to a request to that effect, to vacate the station and surrender the cars, a sergeant and 12 men were ordered to remove the latter by force. This was quickly and effectively done. The Colombian officer thereupon formed his company in the street opposite the station and prepared to load, whereupon he was informed by Captain Williams that in case the Colombian troops loaded their rifles the marines would be compelled to open fire. The Colombians then desisted and withdrew.

During the period of the service of the battalion on the Isthmus it suffered considerably from remittent and intermittent fever; there was but one case of yellow fever, which terminated fatally, and some dysentery. The fact that there were not more cases of yellow fever, which will invariably attack unacclimated men in localities similar to Panama, is due to the unremitting and intelligent efforts of the surgeon who was on duty with the battalion, and the supervision and care over the men which was exercised by the officers on duty with it.

Colonel Russell, in his report, says:

> It gives me great pleasure to report that the officers and men of this battalion, under the trying conditions of this service, have performed their duties most willingly and faithfully, and the conduct of the battalion has been excellent with but few exceptions. P. A. Surg. C. DeW. Brownell, U. S. Navy, medical officer of the battalion, has rendered most faithful service in treating and caring for the sick and looking after the sanitary condition of the camp, devoting his time, both day and night, to his duties.

The situation on the Isthmus having cleared up, and there being no further need for the maintenance of the marine battalion at that place, the command was embarked in the U. S. S. *Panther*, on November 18, 1902, and ordered to proceed to Culebra, Virgin Islands, for duty in connection with the winter maneuvers. The *Panther*, with the battalion on board, arrived at Culebra on November 25, 1902. The personnel, however, had become so debilitated by reason of their arduous

duty in the Tropics and the unsanitary conditions to which they had been necessarily exposed, and the probability of the spreading of disease among them by retaining them further in that climate having become so great, the battalion was ordered to return to the United States in the *Panther*, and arrived at Hampton Roads December 7, 1902, leaving shortly thereafter for League Island, Pa., at which navy-yard they arrived on December 9, 1902. The command was disembarked at League Island, and the officers and men were returned to the stations from which they had been taken.

The commanding officer of the battalion reports as follows:

In reference to the stores furnished by the quartermaster's department of the Marine Corps, I wish to report that, in general, the command was well and amply supplied. * * *

In this conection it gives me great pleasure to invite the Department's attention to the tactful manner in which a difficult mission was carried out by Lieutenant-Colonel Russell and the officers and men under his command.

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NATIONAL RIFLE COMPETITION AT SEA GIRT, N. J.

For the first time in the history of our country the last Congress appropriated $2,500 for the purpose of purchasing a trophy and prize for rifle competition for the Army and Militia under such conditions as should be prescribed by the Secretary of War.

In accordance with this act the Secretary of War appointed a board of 21 officers, of whom 5 were from the regular service; of this number Lieut. Col. Charles H. Lauchheimer, assistant adjutant and inspector, U. S. Marine Corps, inspector of target practice of the corps, was detailed as one of the members of the board; 8 from the National Rifle Association, and 8 from the country at large, which board formulated conditions under which the national match should be fired, as follows:

To be shot on September 8 and 9, 1903, open to teams of 12 men each from the following:

(*a*) The Army of the United States, one team from the troops stationed within each of the military departments.

(*b*) The United States Navy.

(*c*) The United States Marine Corps.

(*d*) The National Guard or Uniformed Militia of the several States and Territories, including the District of Columbia. (One team from each State, Territory, and the District of Columbia.)

(*e*) The members of each team to be officers or enlisted men of the corps or organization which they represent, and to appear in the authorized service uniform and belts thereof.

Distances.—200, 500, 600, 800, 900, and 1,000 yards.

Number of shots.—Ten by each competitor at each range.

Positions.—Standing at 200 yards; prone with head toward target at all other ranges.

Arms.—United States service rifles and carbines, with not less than 3-pound trigger pull.

Ammunition.—Service cartridge as manufactured and issued by the Ordnance Department, United States Army.

Entrance fee.—$24 per team, except by teams of the Army, Navy, and Marine Corps, this amount to be paid to the National Rifle Association, which association shall pay the operating expenses of the contest.

Two days' contest.—First day, 200, 500, and 600 yards; second day, 800, 900, and 1 000 yards.

Rules.—Rules governing are those published in General Orders, No. 73, Headquarters of the Army, Adjutant-General's Office, Washington, D. C., April 27, 1903.

And prizes as follows:

1. To the team making the highest aggregate total in the two days' contest—"The National Trophy"—(authorized by act of Congress), to be competed for annually	$1,000.00
And cash	500.00
2. The team making the second highest total—"The Hilton Trophy"—presented by the late Hon. Henry Hilton, of New York, to be competed for annually, and cash	300.00
3. The team making the third highest aggregate total—the bronze "Soldier of Marathon"—presented by the commander in chief on behalf of the State of New York, to be competed for annually, and cash	200.00
4. The team making the fourth highest aggregate total, cash	150.00
5. The team making the fifth highest aggregate total, cash	100.00
6. The team making the sixth highest aggregate total, cash	50.00
7. And also a medal to each member of each of the winning teams.	

Although it was my intention to keep the team which participated in last year's competition at Sea Girt intact during the past winter, the exigencies of the service would not permit this being done, as their services were required both at Culebra and at Panama. Some of the men were sent to the Philippines. When the team was collected this year only seven or eight of the men of last year's team were available, and therefore additional men had to be picked from the stations on the Atlantic coast, and practice was held both at Ordway, Md., and subsequently at Sea Girt, N. J., prior to the competition.

As provided for in the conditions given above, the national trophy was fired for on the 8th and 9th of September, 15 teams participating, 2 from the Army, 1 from the Navy, 1 from the Marine Corps, and 11 teams from the National Guards.

In this competition the team representing the Marine Corps stood sixth, making an aggregate of 2,772 out of a possible 3,600, defeating the teams of the Army and Navy. They received medals and were entitled to the $50 prize, which latter, however, was not turned over to the team captain in view of the decision of the Comptroller that as the appropriation was for rifle competition among teams of the Army and Militia, the Navy and Marine Corps could not be recipients of the money prizes. It is hoped, however, that this omission will be remedied during the next session of Congress, and it is understood that the Secretary of War will endeavor to have the necessary fund appropriated in order that the prize won by the Marine Corps team may be turned over to it.

Although the team representing the Marine Corps fell considerably short of the standard of the work it had done at practice, yet it is gratifying to me to report that the Marine Corps team stood at the head of the regular service, with whom the competition was more on an equality than it was with the teams representing the National Guard, firstly, because the fact that the National Guard teams are composed of representative expert riflemen who have for years been firing on teams; and, secondly, because of the large amount of practice which the National Guard teams get as compared with that which the Marine Corps is able to afford its men.

In the other matches in which the team representing the Marine Corps competed during the tournament at Sea Girt their standing, while not up to that which I hoped it would be, was always well to the front and satisfactory.

While the standard of marksmanship was therefore somewhat below that which I had a right to expect as a result of the reports made of

the practice, yet on the whole it was very creditable to the corps, and this in addition to the fact that the conduct of the men, as reported by the team captain, was of an exemplary character, no report of even the most trivial character being made, although the men were not placed under any restrictions but permitted to go and come without undue military restraint. As the participants and spectators at the Sea Girt competition included military representatives from all sections of the country, it is believed that the bearing and conduct, as well as the scores made, will greatly redound to the credit and prestige of the corps.

TARGET PRACTICE.

Great attention has been paid to target practice during the year and the progress made has been very satisfactory. A great deal of trouble has been experienced in getting long-distance ranges, as the high-power rifle now in use alarms people living anywhere in the vicinity of a rifle range, and as a general thing they get out injunctions against the corps, thus preventing firing before the practice really begins.

The country is now becoming so densely populated within reasonable distance of the cities that, in the near future, practice will have to be stopped outside of target galleries at posts in the Eastern States.

In view of the above it is earnestly hoped that the Board for the Promotion of Rifle Practice in America, authorized by the last Congress, will secure an appropriation for the purchase of land and the construction of suitable ranges for the use of the Army, Navy, and Marine Corps. If ranges for this purpose are secured, land enough should be purchased to admit of a large number of men being encamped at one time. If provision is not made by Congress for the establishment of proper ranges in the East, sharpshooters will be very scarce when the new long-distance army rifle is adopted.

Lieut. Col. C. H. Lauchheimer, assistant adjutant and inspector, and inspector of target practice, U. S. Marine Corps, was appointed a member of the committee for the purpose of selecting the members of the rifle team which the National Rifle Association sent to Bisley, England, recently, for the purpose of competing for the "Palma trophy." The team selected included Second Lieut. Thomas Holcomb, jr., U. S. Marine Corps, and won the trophy in a competition participated in by teams from Great Britain, Canada, France, Norway, Australia, and Natal.

The report of the inspector of target practice of the corps is herewith appended, marked "D."

RECRUITING.

Since my last report 15 recruiting offices have been opened and the number of men enlisted has been satisfactory. The system of itinerant recruiting was tried, but was found to be unsatisfactory, not only on account of the class of men secured, but for the reason that the increased cost per capita of recruits was much more than for those enlisted at the regular offices.

The reports from the officers now on recruiting service are very satisfactory, and show that a large number of men are being enlisted. Instructions have been given to keep up the standard of recruits and

in consequence we are still securing excellent men for the service, and by the 1st of January, 1904, I think the corps will be up to the strength allowed by law.

On account of the difficulty in obtaining medical officers from the Navy to examine recruits I have been compelled to employ civilian physicians, and while I have endeavored to secure the best men possible for this purpose a few recruits have been passed for enlistment who were not up to the standard and were, shortly after their enlistment, condemned by boards of medical survey and discharged. In every case of this kind the medical examiner has been called upon for an explanation and cautioned to be more particular in the future.

THE DAVIS MEMORIAL.

Under date of June 5, 1902, Maj. (then Capt.) William C. Dawson, U. S. Marine Corps, brought to my attention the fact that nothing but a plain wooden slab marked the grave of the late Capt. Austin R. Davis, U. S. Marine Corps, who was killed on the firing line at the battle of Tientsin, China, July 13, 1900, and who was buried in the National Cemetery at Arlington, Va.

In view of the fact that Captain Davis had died in the performance of an officer's highest duty, and that the manner of his death had brought new honor to the service and to his country, and that he was the first and only officer of the Marine Corps to be killed in actual battle since the civil war, it seemed particularly fitting that the officers of the Marine Corps should unite in publicly honoring his name and perpetuating the memory of his services in the most practical and appropriate manner, to wit, by erecting a monument, suitably inscribed, over his grave at Arlington, and to that end the communication of Captain Dawson was referred to Lieut. Col. (then Maj.) Charles H. Lauchheimer, assistant adjutant and inspector, U. S. Marine Corps, with the request that he should assume charge of the matter and take such steps as he might deem proper for the purpose of carrying out the suggestion contained in the letter of Captain Dawson.

Lieutenant-Colonel Lauchheimer undertook this task and communicated with all the officers in the corps, and as a result thereof reported, under date of May 7, 1903, that 145 officers had responded by contributions, and that their subscriptions amounted to $787.54, from which there was to be deducted $9 which had been expended by him in postage, both domestic and foreign, in carrying out the necessary correspondence.

Lieutenant-Colonel Lauchheimer requested that a board be appointed to audit the accounts of the fund, which board should also be empowered to solicit designs for and recommend to me a suitable monument to be erected over the grave of the late Captain Davis.

In accordance with this request I appointed a board consisting of Col. (then Lieut. Col.) G. F. Elliott, Maj. Chas. L. McCawley, and Maj. H. K. White, and this board, under date of September 9, 1903, submitted a report to the effect that Messrs. J. F. Manning & Co., of Washington, D. C., had satisfactorily completed and erected over the grave of the late Capt. Austin R. Davis a memorial in accordance with the designs which had been submitted and approved, and recommended that Messrs. Manning & Co's. bill for $778.54 in payment therefor be settled.

Lieut. Col. C. H. Lauchheimer reports, under date of September 15, 1903, that a check for the above amount had been transmitted to Messrs. Manning & Co.

At the proper time in the near future this monument will be unveiled with proper ceremonies by the officers and men of the Marine Corps on duty at Washington.

UMPIRES AND OBSERVERS, ARMY AND NAVY MANEUVERS.

On July 21, 1903, I received the following order from the Secretary of the Navy to detail certain marine officers as umpires and observers in connection with the combined maneuvers between the Army and Navy:

NAVY DEPARTMENT,
Washington, July 20, 1903.

SIR: 1. The opportunity for obtaining most valuable experience in connection with the combined maneuvers between the Army and the Navy taking place in the latter part of August is one of which the Marine Corps should take every possible advantage, and with this end in view it is desirable that they should act as observers in the different forts and batteries, and also on board some of the ships.

2. You will therefore select 10 officers for this duty, and direct them to report by letter to the president of the Naval War College for such assignment as he may make in the distribution of the various umpires and observers. It is proposed that there shall be at least one marine officer assigned to each fort as an observer, and should the distribution of batteries be such as to make it advisable more than one may be so assigned.

3. The umpires and observers will proceed to Portland, Me., if assigned to the forts, and to Rockland, Me., if assigned to the fleet, arriving in both places on Monday morning, August 24, and their duty will continue through that week.

4. Detailed instructions as to the duty will be obtained at the Naval War College.

Very respectfully,

W. H. MOODY, *Secretary.*

MAJOR-GENERAL, COMMANDANT,
U. S. Marine Corps.

In compliance with the above order I communicated with Capt. F. E. Chadwick, U. S. Navy, president Naval War College, requesting him to inform me where he desired me to send the officers who were to be detailed, and in accordance with the wishes expressed in his response to my inquiry I ordered the officers to report as follows for duty as observers:

Fort Williams	Lieut. Col. W. P. Biddle.
	Capt. W. C. Neville.
Fort Preble	Maj. H. K. White.
Fort McKinley	Lieut. Col. A. C. Kelton.
	Capt. W. N. McKelvy.
Fort Scammel	Maj. C. A. Doyen.
Fort Levett	Lieut. Col. C. H. Lauchheimer.
	Capt. P. M. Bannon.
Cow Island	Maj. F. J. Moses.

Col. G. F. Elliott was ordered to report for duty as general observer on shore, and at the request of Captain Chadwick I detailed Maj. L. C. Lucas, U. S. Marine Corps, for duty as assistant to Colonel Elliott, who was authorized to go to any point he might desire while on such duty. The detail of Major Lucas made 11 officers of the corps who were detailed for duty as observers in accordance with the directions contained in the letter of the Department mentioned above.

I was very much gratified to receive the order to detail marine officers as umpires and observers at these maneuvers, as this duty has been very instructive and of great benefit to the officers detailed.

MARINE BAND.

The Marine Band continues in a high state of efficiency under the instruction of the leader of the band, William H. Santelmann, U. S. Marine Corps, and is acknowledged by all who hear the music rendered by it to be the leading military band of the United States.

The band furnishes music on all occasions of ceremony at the White House and on other public occasions, and during the summer months gives weekly concerts at the White House and Capitol grounds and at the marine barracks in this city. These concerts seem to be greatly appreciated by those who attend them, and the band appears to be considered the representative national band of the United States.

In order to keep up the standard of the organization the best musical talent in the country should be secured, but owing to the constant troubles with the various musical unions of the country it is difficult to get first-class men to enlist for the pay now given to musicians of the band, and as fast as their terms of enlistment expire the best musicians decline to reenlist, owing to the fact that they are afraid that they will not be allowed to accept outside engagements, which would make their pay correspond with the amount they could earn in civil life.

In order to keep this excellent band up to the high state of efficiency which it has attained, I earnestly recommend that the pay of the musicians be increased as follows:

To the leader, the pay and allowances of a captain.
To the second leader, the pay and allowances of a second lieutenant.
To first-class musicians, $100 per month.
To second-class musicians, $75 per month.

With the increases recommended the high standard of the band can be maintained, and the Marine Band will continue to be the leading band of the United States.

STRENGTH OF THE CORPS INCREASED.

By the act of Congress approved March 3, 1903, the authorized strength of the Marine Corps was increased by the addition of the following officers and enlisted men, viz: One colonel, 1 lieutenant-colonel, 5 majors, 12 captains, 25 first lieutenants, 12 second lieutenants, 1 assistant adjutant and inspector with the rank of lieutenant-colonel, 2 assistant adjutants and inspectors with the rank of major, 1 assistant quartermaster with the rank of lieutenant-colonel, 5 assistant quartermasters with the rank of captain, 1 assistant paymaster with the rank of lieutenant-colonel, and 1 assistant paymaster with the rank of captain, and 1 sergeant-major, 40 quartermaster sergeants, 12 first sergeants, 65 sergeants, 55 corporals, 10 drummers, 10 trumpeters, and 527 privates; making a total increase of 67 officers and 720 enlisted men. The present authorized strength of the Marine Corps is 278 officers and 7,532 enlisted men.

DISTRIBUTION OF FORCE.

In the United States.—Headquarters United States Marine Corps; assistant quartermaster's office, Philadelphia, Pa.; assistant paymaster's office, San Francisco, Cal.; Portsmouth, N. H.; Boston, Mass.; Newport, R. I.; New York, N. Y.; Iona Island, N. Y.; League Island,

Pa.; Naval Home, Pa.; Annapolis, Md.; Washington, D. C.; navy-yard, Washington, D. C.; Norfolk, Va.; Port Royal, S. C.; Pensacola, Fla.; Dry Tortugas, Fla.; Mare Island, Cal.; naval training station, San Francisco, Cal.; Puget Sound, Bremerton, Wash.; Sitka, Alaska.

In the West Indies.—San Juan, P. R.; Culebra, Virgin Islands.

In the Ladrone Islands.—Guam.

In the Philippines.—Cavite, Isabela, Olongapo, Pollok.

In Japan.—United States Naval Hospital, Yokohama.

On board ships in commission.—U. S. receiving ships *Columbia*, *Wabash*, *Independence*, *Franklin*, *Puritan*, *Southery*, *Nipsic*, *Santee*, U. S. ships *Alabama*, *Annapolis*, *Baltimore*, *Boston*, *Buffalo*, *Chicago*, *Detroit*, *Helena*, *Indiana*, *Kentucky*, *Maine*, *Massachusetts*, *Michigan*, *Monadnock*, *Nashville*, *New Orleans*, *New York*, *Oregon*, *Pensacola*, *Rainbow*, *San Francisco*, *Texas*, *Wilmington*, *Yankee*, *Albany*, *Atlanta*, *Bancroft*, *Brooklyn*, *Chesapeake*, *Concord*, *Dolphin*, *Illinois*, *Kearsarge*, *Machias*, *Marblehead*, *Mayflower*, *Mohican*, *Montgomery*, *Newark*, *Newport*, *Olympia*, *Panther*, *Prairie*, *Raleigh*, *Solace*, *Vicksburg*, *Wisconsin*.

* * * * * * *

ARMY COURTESIES.

As heretofore, the Marine Corps is under obligations to the army authorities for their courtesy in furnishing transportation for its officers and enlisted men and stores, on army transports, and in furnishing the corps with certain rations and other supplies upon application.

REGULAR APPROPRIATIONS.

All the regular appropriations for the support of the corps have been carefully and judiciously expended, all purchases being substantiated by vouchers.

It gives me pleasure to be able to state that during the past year the Marine Corps has met promptly and satisfactorily the many and varied demands made upon it, and that its reputation for constant readiness and high efficiency has been maintained, and I feel confident that I will turn over to my successor, Brig. Gen. George F. Elliott, a corps of officers and men well drilled, disciplined, and equipped, ready to meet any and all demands that may be made upon it.

The different staff departments are in a high state of efficiency and have promptly met all demands made upon them, and the clerical force has worked early and late to keep the business of these headquarters up to date.

Very respectfully,

CHARLES HEYWOOD,
Major-General, Commandant, U. S. Marine Corps.

The SECRETARY OF THE NAVY.

REPORT

OF THE

SECRETARY OF THE INTERIOR.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., November 30, 1903.

SIR: I have the honor to submit herewith a report of the operations of this Department during the past year, together with such recommendations and suggestions as my experience leads me to believe will, if carried into effect, tend to the betterment of the service and more effectually protect the interests of the Government. The various diversified interests connected with the branches of the public service committed to the supervision of the Secretary of the Interior are herein summarized and set forth in detail in the appended reports of the heads of the several bureaus and offices.

The increase in the public business requiring consideration, to which reference was made in my last annual report, has continued during the past year, notwithstanding the fact that one branch of the service—the Census Office—was by law transferred on July 1, 1903, to the Department of Commerce and Labor. Through hearty cooperation, however, on the part of the employees, coupled with an extension of the hours of labor where practicable, the work has been expeditiously handled and may be regarded as well in hand. The accessions to the force which will be necessary during the ensuing fiscal year are indicated in the Departmental estimates for that period, which will be brought to the attention of Congress through the Secretary of the Treasury, as required by the provisions of the act of March 3, 1901 (31 Stat. L., 1009).

Attention has heretofore been called to the inadequacy of the compensation fixed by law for the services of the Assistant Secretary of the Interior and the chiefs of divisions in the Secretary's office, and in again adverting to the subject I have to suggest the early readjustment by Congress of these salaries on a more equitable basis.

By the act of Congress approved June 17, 1902, provision was made for the construction of irrigation works for the reclamation of arid

and semiarid lands of the Western States. Thereafter a reclamation service was organized, surveys made, and various projects considered. A contract has been let for the construction of diversion works in the Truckee River, Nevada, and also of a canal to carry waters to a reservoir on the Carson River. Investigations in connection with other projects are rapidly approaching the point where contracts can be let for their construction. A detailed report of the results of the reclamation work as herein outlined will be submitted to Congress, as required by the provisions of section 2 of the act above mentioned.

Two additional forest reservations have been established and two reserves have been slightly reduced in area. The management of these reservations during the year has been satisfactory. I am of the opinion, however, as hereinafter indicated, that the transfer of this service to the Agricultural Department would be productive of better administrative results.

Existing laws relating to the public lands in many instances do not provide adequate protection for the interests of the Government, and remedial legislation in the cases and along the lines as suggested herein should be enacted by Congress at the earliest practicable date. In my last annual report I adverted to the fact that in carrying into effect the provisions of the act of June 27, 1902, amending the act of January 14, 1889 (25 Stat., 642), relating to the sale of timber on the Chippewa Indian lands, Minnesota, I stated it was my purpose to solicit bids therefor and not to sell the land at public auction. This course was pursued. The first sale under the act took place on the 2d of March, 1903, at Crookston, Minn., and the results therefrom were eminently satisfactory, and it is my purpose to apply this method to all sales of public timber made hereafter where it is at all permissible under existing law.

The method adopted three years ago (January, 1901) for the leasing of Osage Indian tribal lands for grazing purposes (act February 28, 1891, sec. 3, 26 Stat. L., 795) upon competitive bids after public advertisement inviting sealed proposals was attended with gratifying results; two years ago (January, 1902) it was extended to the agricultural and grazing lands of the Apache, Kiowa, and Comanche Indians, with equally if not more satisfying results and has since been applied in the cases of other Indians' tribal lands; in every case the revenue was greatly increased over that obtained under the old method of indiscriminate leasing by informal or noncompetitive bids. This method will be continued in the future in similar cases, and has been most satisfactorily enforced in the Indian Territory.

The rules and regulations made under the provisions of the act of May 27, 1902, to govern sales of allotments of deceased Indians, known as "inherited" lands, which have brought about very satisfactory results, both to the Department and the heirs, have been extended to

the cases of certain living Indians whose lands, by special legislative enactment, may be sold for their benefit. It is expected that greatly increased prices will be obtained in these latter cases over those formerly realized.

I acknowledge with pleasure the valuable aid cheerfully rendered in the conduct of the business of the Department by the Assistant Secretaries, the Assistant Attorney-General, the heads of the various bureaus, the chief clerk of the Department, and the chiefs of division of the Secretary's office.

OFFICE OF THE ASSISTANT ATTORNEY-GENERAL.

The force of this Office is occupied in greater measure with the consideration of legal problems and claims arising under the laws of the United States relating to public lands and Indian affairs, and in lesser measure with the disposition of matters arising under the pension, patent, and other laws, the administration of which is committed to this Department.

The work is practically up to date—that is, as nearly so as may be and allow the time provided by the rules for the presentation of arguments pro and con in litigated cases.

The matters at this time awaiting consideration and action are: Two hundred and twenty-nine appeals from decisions of the Commissioner of the General Land Office; 56 motions for review of decisions heretofore rendered on such appeals; 10 references with request for law opinions, to be given by the Assistant Attorney-General, and 47 miscellaneous matters.

The matters considered and disposed of during the last year are as follows: Twelve hundred decisions receiving the approval and signature of the Secretary of the Interior in appeals from decisions of the Commissioner of the General Land Office; 265 decisions receiving the approval and signature of the Secretary of the Interior upon motions for review; 513 decisions, regulations, orders, etc., receiving the approval and signature of the Secretary of the Interior in miscellaneous matters; 87 law opinions receiving the signature of the Assistant Attorney-General and the approval of the Secretary of the Interior.

The more important of the land decisions and opinions are, as a matter of ready reference, for use as precedents, published in book form in volumes known as the "Decisions of the Department of the Interior Relating to the Public Lands." Decisions of this character for the past year are to be found in volume 31 of said Land Decisions, already out, and in volume 32, now in course of publication.

In addition to the work performed immediately in office, as above outlined, the Assistant Attorney-General and his assistants have also been occupied in presenting and arguing in the courts of the District

of Columbia and the Supreme Court of the United States cases, in which the Government, through the Interior Department, is interested. The number of such cases during the past year has been unusually large, and some of them of great importance, because of the magnitude of the questions involved and of the fact that they furnish a rule of action for a large class of similar cases. Notably among these are Cherokee Nation *v.* Hitchcock (187 U. S., 294); United States *v.* Rickert (188 U. S., 432); Northern Pacific Ry. Co. *v.* Soderberg (188 U. S., 526); Kirwan *v.* Murphy (189 U. S., 35); Phillips *v.* Ware and Hitchcock (four cases) (189 U. S., 507), and Riverside Oil Co. *v.* Hitchcock (190 U. S., 316). In all of the above cases the contentions of the Department were sustained.

There are now pending before the Supreme Court the cases of Morris *v.* Hitchcock, and Humbird et al. *v.* Avery et al. The Humbird case was recently argued, but a decision has not yet been handed down. Brief and argument are now in course of preparation in the Morris case, which will not come up in its order on the docket for some weeks.

The able manner in which the very difficult public business intrusted to this office has been dispatched merits the highest commendation, and it affords me pleasure to so state.

LANDS.

There were disposed of during the fiscal year ended June 30, 1903, public lands aggregating 22,824,299.65 acres, classified as follows: Cash sales, 3,073,896.99 acres; miscellaneous entries, embracing homesteads, land warrants, scrip locations, State selections, swamp lands, railroad and wagon-road selections, Indian allotments, etc., 19,577,031.10 acres, and Indian lands, 173,371.56 acres, showing an increase of 3,335,764.35 acres as compared with the aggregate disposals for the preceding fiscal year.

The total cash receipts during the fiscal year from various sources, including disposal of public land, $10,557,618.66, and Indian land, $308,939.14; from depredations on public lands, $95,251.31; from sales of timber on forest reserves, $31,966.24; from sales of Government property, $849.82, and for furnishing copies of records and plats, $30,118.48; aggregate, $11,024,743.65, an increase of $4,762,816.47 over the preceding fiscal year.

The total expenses of district land offices for salaries and commissions of registers and receivers, incidental expenses, and expenses of depositing public moneys during the fiscal year ended June 30, 1903, were $828,862.62, an increase, as compared with the fiscal year ended June 30, 1902, of $10,364.02.

The following table, compiled from reports received from the vari-

ous local land offices, gives, by States and Territories, an approximate estimate of the reserved, as well as the unappropriated, public lands in the public land States and Territories at the close of this fiscal year:

State or Territory.	Area unappropriated and unreserved.			Area reserved.	Area appropriated.
	Surveyed.	Unsurveyed.	Total.		
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*
Alabama	258,420		258,420	52,020	32,347,480
Alaska	(a)	367,983,506	367,983,506	b 120,174	(a)
Arizona	11,691,038	35,312,783	47,003,821	20,159,837	5,628,662
Arkansas	2,759,553		2,759,553	2,560	30,781,567
California	29,456,676	7,508,854	36,965,530	19,718,027	43,286,363
Colorado	33,638,530	4,288,086	37,926,616	5,486,643	22,934,901
Florida	1,179,197	160,070	1,339,267	19,259	33,714,114
Idaho	12,376,285	29,409,495	41,785,780	1,334,031	10,173,629
Illinois					35,842,560
Indiana					22,950,400
Indian Territory				19,658,380	
Iowa					35,646,080
Kansas	1,047,831		1,047,831	987,875	50,347,014
Louisiana	109,964	65,018	174,982	1,468,434	27,411,944
Michigan	365,065		365,065	120,695	36,333,440
Minnesota	3,498,127	1,670,558	5,168,685	2,686,355	43,343,040
Mississippi	112,720		112,720		29,572,400
Missouri	227,158		227,158		43,568,682
Montana	18,244,326	39,641,337	57,885,663	17,384,134	18,323,803
Nebraska	8,848,906		8,848,906	606,611	39,681,763
Nevada	30,792,220	30,485,688	61,277,908	5,983,409	3,075,323
New Mexico	39,336,648	14,435,711	53,772,359	6,606,759	18,049,682
North Dakota	8,749,864	4,447,475	13,197,339	3,325,490	28,387,251
Ohio					26,062,720
Oklahoma	3,091,333		3,091,333	3,702,462	17,920,605
Oregon	17,182,749	5,923,067	23,105,816	12,801,800	25,369,824
South Dakota	10,522,553	382,601	10,905,154	12,722,374	25,578,872
Utah	11,526,008	29,843,553	41,369,561	6,187,645	4,984,234
Washington	4,464,185	5,021,007	9,485,192	11,865,205	21,396,483
Wisconsin	113,001		113,001	432,524	34,729,395
Wyoming	34,543,998	2,574,871	37,118,869	15,790,840	9,523,571
Grand total	284,136,355	579,153,680	863,290,035	169,234,043	776,965,802

a The unreserved lands in Alaska are mostly unsurveyed and unappropriated.
b So far as estimated.

PATENTS ISSUED.—There were 54,365 patents of all classes issued during the year. Of this number, 47,654 are classed as agricultural, 4,904 are Indian allotments, 1,104 are mineral patents, 200 coal patents, 276 private land claims, 187 railroad patents, and 40 swamp-land patents. This is an increase of 6,663 over the agricultural patents issued during the preceding year.

RAILROAD AND WAGON-ROAD LAND PATENTS.—During the fiscal year there have been certified or patented on account of railroad and wagon-road grants 5,816,957.04 acres, as against 5,008,131.66 acres last year, an increase of 808,825.38 acres.

ADJUSTMENTS.—The report of the Commissioner of the General

Land Office shows that material progress has been made in the examinations necessary to the adjustment of railroad and wagon-road land grants, including the administration of the acts of July 1, 1898 (30 Stat. L., 597–620), March 2, 1899 (30 Stat. L., 994), and March 2, 1901 (31 Stat. L., 950), relating to grants to the Northern Pacific Railroad Company. A detailed statement of the progress made in the adjustment of these grants will be found beginning at page 19 of said report.

SWAMP-LAND PATENTS, SCHOOL, AND OTHER STATE AND TERRITORIAL LANDS.—Swamp lands in place were patented to the amount of 47,467.88 acres, as against 68,744.97 acres patented the previous year, being a decrease of 21,277.09 acres. But there were reapproved and also patented, in addition to the above, 2,862,280 acres, covering the Everglades and Mangrove Swamp of Florida. The whole amount patented during the year was, therefore, 2,909,747.88 acres, a great increase over the acreage patented during the previous year. No swamp-land indemnity patents were issued during the year. Indemnity, school, and other selections were made and certified during the year, under their several grants to the various States and Territories, to the amount of 644,790.02 acres.

STATE DESERT-LAND SEGREGATIONS.—By section 4 of the act of August 18, 1894 (28 Stat. L., 372–422), as amended by the act of June 11, 1896 (29 Stat. L., 413–434), and act of March 3, 1901 (31 Stat. L., 1133–1188), provision is made for the donation to each of the desert-land States of not more than 1,000,000 acres of such lands. Under these acts lists were approved as follows:

State.	No. of lists.	Aggregate.
		Acres.
Idaho	2	11,892.46
Oregon	1	84,707.74
Wyoming	1	14,424.94

RESERVOIRS FOR THE PURPOSES OF STOCK BREEDING AND TRANSPORTATION.—Under the act of January 13, 1897 (29 Stat. L., 484), the number of declaratory statements on hand at the beginning of the fiscal year was 7,728. There were received during the year 1,383, making the total requiring action 9,111. Of this number, 8,132 were acted upon, of which 3,038 were canceled or relinquished, and the remainder, 979, were found to be in proper form and await further action under the law by the declarants. There were, accordingly, pending for action at the end of the fiscal year 4,073.

RIGHTS OF WAY FOR RAILROADS.—Under the act of March 3, 1875 (18 Stat. L., 482), providing for rights of way over public lands; the act of May 14, 1898 (30 Stat. L., 409), providing for rights of way in

Alaska, and various special acts, 629 companies have filed articles of incorporation which have been accepted, 31 of which were accepted during the fiscal year ended June 30, 1903. Right of way has been approved for 464 companies, 17 of whom received their first approval during the same period. There were received during the year 463 maps of location of railroads, which, with those already pending, made a total of 518 maps on hand for action during the year. Of these, 120 have been approved; 12, not requiring approval, have been filed; 2 were pending before the Secretary, and 265 were otherwise disposed of, a few having been rejected and the rest returned for correction, leaving 119 awaiting action June 30, 1903.

RIGHTS OF WAY FOR IRRIGATION AND OTHER PURPOSES.—Under the provisions of sections 18 to 21, inclusive, of the act of March 3, 1891 (26 Stat. L., 1095), as amended by section 2 of the act of May 11, 1898 (30 Stat. L., 404), the right of way has been approved to 414 companies, individuals, and associations of individuals, of which 82 received their first approval during the past year. There have been received during the year 451 maps, and 96 have been approved, 19 have been filed not requiring approval, 11 pending before the Secretary, and 255 rejected or returned for correction.

Under the act of February 15, 1901 (31 Stat. L., 790), authorizing the Secretary of the Interior to permit the use of rights of way through public lands, reservations, or national parks for telegraph and telephone lines, electrical and water plants, canals, reservoirs, etc., for the storage and conveyance of water, and all beneficial uses, applications have been approved for 26 companies, individuals, and associations of individuals. Under the provisions of this act there were 3 maps pending in the General Land Office July 1, 1902, and 98 were received during the year, of which 11 were approved and 57 otherwise disposed of, most of them being returned for correction.

Under the provisions of the tramroad act of January 21, 1895 (28 Stat. L., 635), as amended by the act of May 11, 1898 (30 Stat. L., 404), 2 maps were received during the year, 3 were acted on, leaving 2 waiting action June 30, 1903.

The annual report of the Commissioner of the General Land Office again calls attention to the necessity for remedial legislation relating to the existing laws for granting rights of way for the various purposes above referred to, and urges the passage of the bill transmitted to Congress by the Department on April 4, 1902, with favorable recommendation. The following extract from my last annual report shows the position of the Department on this subject and the action taken upon the said bill:

In my report of last year attention was called to the fact that the above-designated acts constituted a group of statutes, the administration of which has been the source of much embarrassment because of the unnecessarily large number of acts and the

confusing amendments, while they do not, after all, cover the whole subject in a satisfactory manner, failing to provide for certain important uses of right of way and being otherwise too limited in scope.

Attention was also called to the necessity for legislation that would empower the Secretary of the Interior to declare a forfeiture of a lapsed right of way for railroads, canals, reservoirs, etc., over the public lands and reservations of the United States, after notice to grantee.

With the purpose in view of securing legislation along the lines indicated, the Department, on April 4, 1902, transmitted to Congress such a bill as in its judgment would meet the requirements of the case, with the recommendation that it receive the approval of Congress and be introduced as a substitute for Senate bills 3374 and 3711, relating to the same subject.

On June 4, 1902, the Committee on Claims submitted a report on Senate bill 3374, in which it was recommended that the title of the bill be amended by striking out the same and inserting in lieu thereof the following: "A bill providing for rights of way in and through public lands, reservations, and certain national parks, and for other purposes," and it was further recommended that the bill be amended by striking out all after the enacting clause and inserting in lieu thereof practically the provisions of the bill transmitted to Congress by my letter of April 4, supra.

In view of the importance of this proposed legislation, I earnestly urge the passage of Senate bill 3374, as amended.

PUBLIC SURVEYS.—By the act of Congress approved June 28, 1902 (32 Stat. L., 453), making appropriations for the sundry civil expenses of the Government for the fiscal year ending June 30, 1903, and for other purposes, there was appropriated "for surveys and resurveys of public lands" the sum of $325,000, of which amount the Commissioner of the General Land Office was authorized to expend as much as he might deem necessary for examinations in the field, etc.

The sum of $75,000 was set aside to cover the cost of field examinations, and the sum of $10,000 was reserved for emergencies, leaving $240,000 to be apportioned among the several surveying districts. The apportionments made to the several districts were as follows:

Alaska	$5,000	Nevada	$10,000
Arizona	12,000	New Mexico	8,000
California	13,000	North Dakota	15,000
Colorado	6,000	Oregon	22,000
Idaho	32,000	Utah	15,000
Minnesota	10,000	Washington	32,000
Montana	40,000	Wyoming	20,000

Further apportionments were made from time to time to several surveying districts from the fund of $10,000 held in reserve.

There were accepted during the fiscal year, after examination in the field, careful comparison of the surveying returns, and inspection of plats and field notes, surveys covering 7,612,302 acres, distributed as follows:

State or Territory.	Acres.	State or Territory.	Acres.
Alaska	3,107	New Mexico	79,294
Arizona	221,125	North Dakota	1,159,486
California	165,497	Oregon	653,376
Colorado	249,954	South Dakota	888,301
Florida	2,533	Utah	821,804
Idaho	446,839	Washington	330,447
Louisiana	150	Wyoming	343,577
Minnesota	262,499	Total	7,612,302
Montana	1,504,963		
Nevada	479,054		

ALASKAN SURVEYS.—By the act of March 3, 1899 (30 Stat. L., 1097), the rectangular system of surveys was extended to the district of Alaska, but no surveys under that system have as yet been executed in that district, nor has the proposed establishment of a principal meridian and several parallels referred to in my last annual report been executed, the successful bidder for the work having failed to enter the field. Invitations for proposals were again issued, but it was found that no competent surveyor would undertake the task at the rates per mile allowed by the statute. Thereupon the surveyor-general was authorized to invite bids for the execution of these basic surveys at a per diem rate. At the close of the last fiscal year bids from a number of well-known surveyors were received, but none were acceptable to the General Land Office, owing to failure to limit the liability. The surveyor-general was then directed to notify the bidders to amend their proposals and submit new bids. It is believed that by another season the survey will be under way. Reports from the region to be traversed by these lines indicate a country which will present very formidable obstacles to rapid progress in surveying.

There have been few applications for surveys in Alaska under the act of March 3, 1891, as amended by the act of May 14, 1898, and nearly all the surveys executed in the last fiscal year have been fragmentary and isolated tracts applied for under the said act of May 14, 1898, which extends the homestead act to that district.

The survey of mission lands has been in preparation and applications have been received from a number of religious societies designating the lands occupied by them. Invitations for proposals to execute these surveys were issued June 30, 1903, but no contracts for the surveys have yet been let.

Congress at its last session increased the appropriation for surveys and resurveys of public lands, and two-thirds of this increase ($50,000) was set apart by the General Land Office, with the approval of the Department, for surveys in Alaska. Four-fifths of this sum will be consumed, it is estimated, by the mission surveys alone.

An examiner of surveys is now engaged in making an investigation

of the conditions in Alaska respecting all classes of surveys, including surveys of mission lands. His report, it is expected, will enable the General Land Office to deal intelligently with the various problems involved in the survey and disposal of Alaska lands.

BOUNTY-LAND BUSINESS.—There has been located during the year, with bounty-land warrants, about 28,160 acres of public lands, distributed as follows:

Arkansas	20,320	Mississippi	1,640
Alabama	1,280	Montana	160
Arizona	160	Minnesota	1,960
California	720	Oregon	80
Louisiana	1,680		
Michigan	160	Total	28,160

Summary of warrants.

	40 acres.	80 acres.	120 acres.	160 acres.	Total.
Act of—					
1847	4			10	1,760
1850	28	18		8	3,840
1852	1				40
1855	1	32	46	90	22,520
Total	34	50	46	108	28,160

DEPREDATIONS UPON PUBLIC TIMBER.—There were 312 cases of depredations upon public timbered lands reported during the year, involving timber to the value of $622,099.11, a decrease of $770,907.72 from last year. In 96 cases recommendation was made for civil suit, the damages involved aggregating $325,293.17. Propositions of settlement to the number of 164 were accepted, their amounts aggregating $87,104.39. From sales of timber cut unlawfully from public lands there were received $8,837.28; from compromises under section 3469, United States Revised Statutes, $34,400.29; from fines imposed and judgments rendered, $64,092.74; making a total of $194,434.70 accruing to the Government through depredations upon public lands.

On June 30, 1903, there were pending in the United States courts 168 civil suits for the recovery of a total amount of $2,976,238.66, the value of timber alleged to have been taken unlawfully from public lands, and 310 criminal prosecutions for cutting or removing timber in violation of law.

The decrease in the number of trespass cases reported last year and in the amount involved therein, as compared with the previous year, is accounted for by the fact that during the last year the time of the special agents has been taken up to a much greater extent than heretofore in investigating alleged fraudulent entries. It seems to be true also that fewer depredations are committed, timber now being

secured from lands entered under the timber and stone or other acts and by purchase from lands within forest reserves.

PROTECTION OF PUBLIC LANDS.—An average of 58 special agents of the General Land Office were employed during the year in investigating alleged fraudulent land entries and otherwise in protecting the public lands from timber trespass or illegal appropriation. Entries to the number of 7,031, in which fraud was charged, were referred to these special agents for investigation; 1,257 were held for cancellation or suspended on special agents' reports, and in 414 cases hearings were ordered; 955 entries were canceled; 663 were examined and found free from fraud; leaving 18,341 cases pending July 1, 1903.

COMPULSORY ATTENDANCE OF WITNESSES.—The act of January 31, 1903 (32 Stat. L., 790), which provides a means by which the attendance of witnesses may be compelled in matters requiring a hearing before registers and receivers will, in the opinion of the Commissioner of the General Land Office, assist his office materially in establishing the fraudulent character of entries made in violation of law, proper instructions thereunder having been issued in circular approved by the Department March 20, 1903. Its beneficial effects, however, are thought to have been offset in a great measure by the facilities for making entries in violation of law afforded by the act of March 11, 1902 (32 Stat. L., 163), which permits the affidavits, proofs, and oaths required of applicants under the homestead, preemption, timber-culture, desert-land, and timber and stone acts to be made before any United States commissioner or commissioner of the court exercising Federal jurisdiction in the Territory, or before the judge or clerk of any court of record in the land district in which the land is situated, in addition to those officers who were theretofore authorized to take such affidavits, proofs, and oaths. The privilege thereby gained has been greatly abused, particularly by certain United States commissioners who have been parties to wholesale frauds in connection with entries allowed on affidavits made before them, some of which cases have been reported for proper proceedings against the guilty parties.

INDIAN ALLOTMENTS.—Pursuant to the recommendation of the Commissioner of the General Land Office, approved by the Department February 21, 1903 (32 L. D., 17), there is now in progress an examination by the Office of Indian Affairs and the General Land Office, jointly, of all allotments remaining intact, as made to Indians under the fourth section of the general allotment law of February 8, 1887 (24 Stat. L., 388), and amendatory act of February 28, 1891 (26 Stat. L., 794), the purpose of the examination being to ascertain whether the lands included in such allotments are suitable for homes for the Indians, whether the requirements of the law as to settlement have been complied with, and generally so to adjust the allotments as to accomplish the purpose for which the law was enacted.

The allotments in the State of Nevada are now being examined by agents of the General Land Office and of the Office of Indian Affairs. Other districts will be taken up as fast as practicable. Those tracts which are not of a character subject to allotment will be restored to the public domain, and an earnest effort will be made to adjust the allotments in a way that will be of the greatest benefit to the Indians and to the public generally.

SOLDIERS' ADDITIONAL HOMESTEAD ENTRY FRAUDS.—Fourteen convictions have been secured during the year for frauds committed in connection with soldiers' additional assignments. The maximum penalties inflicted were imprisonment for seven years and a fine of $1,400. A great reduction is noticeable in the percentage of fraudulent cases of soldiers' additional homestead locations.

ALLEGED FRAUDS AND IRREGULARITIES UNDER THE PUBLIC LAND LAWS.—During the past year there have been indicted and arrested in the State of Oregon, charged with forgery and conspiracy to defraud the Government, a United States commissioner and three others, the first being a woman. The United States commissioner has been removed from her office, and all are awaiting trial by the court.

It is alleged that several hundred entries and final proofs were made before this commissioner under the act of March 11, 1902 (32 Stat. L., 790), all of which have been or are being examined by officers of this Department. The methods pursued by these parties are alleged to have been substantially as follows:

Forged entry papers of fictitious entrymen, alleged to have been executed before the United States commissioner, alleging settlement on a tract of land within the limits of a forest reserve prior to the creation of such reserve, would be transmitted to the local land office. Within a month thereafter, probably, final proof notices on said entry would issue, and after the period of publication required, forged proofs, alleged to have been executed before this commissioner, would be transmitted to the local land office, where, everything on the face of the papers being regular, they would be forwarded by the register and receiver to the General Land Office at Washington, where, no intimation of fraud appearing, the proof was approved and patent on the entry issued. Thereafter, forged deeds alleged to have been executed by the fictitious entrymen before this commissioner or a notary public, conveying the land to one of the parties to the conspiracy, would be duly filed for record, and thereafter the land would be transferred by one of said parties to some other person, or else made a basis for a lieu selection under the act of June 4, 1897.

Suits have been brought in a number of instances in the Federal courts to vacate patents and to restore to the public domain the lands acquired by these alleged fictitious entrymen.

The labor involved in obtaining the evidence of these forgeries and

conspiracies and in presenting the same to the Federal grand jury has covered a period of many months and has occupied almost the entire time of one of the most competent inspectors of this Department, who has received invaluable cooperation from the United States attorney for Oregon. It is believed that the outcome of the matter will go far toward putting an end in that section to the fraudulent practices that seem to have heretofore been much in vogue in securing title to public lands.

Information has also been received from the Department of Justice of the conviction, by the Federal court in the northern district of California, of three persons for subornation of perjury in connection with the entry of land under the timber and stone act.

These convictions, it is alleged, are the first of their kind for fifteen years in that section, and it is believed they will have a wholesome moral effect toward stopping the fraudulent transactions of this character. At any rate, it is the purpose of the Department to pursue with unflagging zeal, until justice is meted out to them, all persons shown to have committed frauds against the Government by unlawfully acquiring any portion of the public domain.

Nearly a year ago information reached the Department which strongly indicated that frauds of a serious nature had been and were being perpetrated against the Government under what is known as the forest reserve lieu land act of June 4, 1897, by a combination of land speculators on the Pacific coast. The information and indicated frauds were of so grave a character that I at once directed a thorough investigation to be made. This investigation was commenced last January, and has been conducted by those having charge of the actual work with great care and with all possible expedition consistent with thoroughness. The investigation has proceeded step by step, without intermission, under my personal direction, and every clew to wrongdoing has been quietly followed to its source, with the result that it is the confident belief of those in charge of the inquiry that the guilty parties will be apprehended and speedily brought to justice.

It has been my determination from the beginning that the matter should be probed to the bottom regardless of the apparent influential character of some of the men involved, and the inquiry has been conducted throughout along these lines. The work is now nearing completion, and the whole matter will at an early date be in shape for definite and appropriate action against the offenders.

While several hundred thousand acres of public lands are involved in the illegal transactions brought to light, the number of acres to which patents have been obtained by the perpetrators of the frauds is comparatively small. It is proper to say also that some of the statements in regard to the matter which have recently appeared in newspapers, both in the East and in the West, are more or less exaggerated

and others are mere surmises. The statements widely circulated to the effect that five United States Senators and a large number of Representatives were implicated, and that the lands involved would reach in value $15,000,000 or $20,000,000, are without foundation in fact. It can be positively stated that they did not originate in this Department. The details and results of the investigation are known only to a few, and sensational stories based upon statements which have heretofore appeared in the press must be received with due allowance.

At the proper time a full statement will be made covering the results of the entire investigation, and the whole matter will be given to the public; but for obvious reasons it is not deemed expedient that a detailed statement of the facts should be given at the present time.

The work of the investigation has been conducted by Arthur B. Pugh, assistant attorney in this Department, and William J. Burns, of the Secret Service of the Treasury Department. Mr. Burns was called into the case last May, and since that time has had entire charge of the Secret Service features of the work, while Mr. Pugh has attended to its legal phases. I am highly gratified with the efficient services rendered by these officers in this matter.

TIMBER ON UNRESERVED PUBLIC LANDS, AND THE REPEAL OF THE TIMBER AND STONE ACT.—In my last annual report, in discussing the condition of the public land laws, I stated that—

> For several years this Department has been urging the enactment of legislation to regulate the sale and use of timber on the unappropriated and unreserved public lands. The experience of this Department has been that the act of June 3, 1878, which authorizes residents of certain States and Territories therein named to cut and remove for building, agricultural, mining, and other domestic purposes any timber growing on mineral lands, under rules and regulations prescribed by the Secretary of the Interior and the act of March 3, 1891 (26 Stat. L., 1093), as extended by the acts of February 13, 1893 (27 Stat. L., 444), and March 3, 1901 (31 Stat. L., 1436), authorizing the residents of the States and Territories therein named to take timber from nonmineral public lands in such States and Territories for use therein for agricultural, mining, manufacturing, or domestic purposes, under rules and regulations prescribed by the Secretary of the Interior *and the act of June 3, 1878 (20 Stat. L., 89), known as the timber and stone act, will, if not repealed or radically amended, result ultimately in the complete destruction of the timber on the unappropriated and unreserved public lands.*
>
> The rapidity with which the unreserved and unappropriated public timbered lands are being denuded of their timber under the acts above mentioned, and the opportunity offered under the timber and stone act for the fraudulent acquisition of title to public timbered lands at the uniform price of $2.50 per acre when they are in many instances worth forty times that, has been heretofore set forth in the pages of my annual reports and those of my predecessors.
>
> In order to put an end to such an undesirable system of disposing of the public timber and the public timbered lands, I, on March 2, 1900, transmitted to both branches of Congress a bill embodying the views of the Commissioner of the General Land Office and this Department on this subject.
>
> Said bill was subsequently introduced in the Senate and House, respectively, but

was never enacted into law, and on the 4th of February, 1901, I again urged the passage of said proposed legislation, with an amendment thereto recommended by the Acting Attorney-General.

Repeating my efforts along that line, on February 8, 1902, I transmitted to the chairman of the Committee on Public Lands of the House of Representatives a report on H. R. 4371, "To authorize and regulate the sale and use of timber on the unappropriated and unreserved public lands, and prevent depredations thereon," and recommended certain amendments thereto. Said bill is almost identical with that recommended by me on March 2, 1900. *The need of the passage of such an act is so imperative that I earnestly recommend that the pending bill, H. R. 4371, with the amendments suggested by this Department, be enacted into law at the earliest possible date.*

The provisions of said bill deal with every possible interest that could be affected by a measure of that character. Its terms are fair and equitable and meet every reasonable demand that could be made by those requiring the use of timber from the unappropriated public timbered lands. A copy of said bill, with the amendments recommended by this Department, will be found at page 199 of the Appendix to this report, marked "Exhibit A."

In this connection and for the purpose of emphasizing the above recommendation, attention is called to the fact that the reports from one public land State alone for the quarter ending June 30, 1902, show that the number of timber and stone entries was 331 during that quarter, embracing 48,585.50 acres; that during the quarter ending September 30, 1902, the number of entries had increased to 1,183, embracing 181,052.02 acres, an increase during the last over the preceding quarter of 852 entries and 132,466.52 acres, and in another State during the same period there was an increase of 294 entries and 45,086.28 acres.

Should this rate of entry continue during the entire year in that one State it would mean the acquisition, in round numbers, of 600,000 acres of timber lands under the timber and stone act, and if the same activity in that class of entries were extended to the other public-land States, then before the expiration of two years practically every acre of unappropriated public timbered lands would have been absorbed and the successful operation of the reclamation act of June 17 last rendered doubtful, if its failure be not absolutely assured, for the reservation of public timbered lands that must of necessity be made to assist in conserving the waters to be impounded by the irrigation systems to be established under that act, will be defeated or made so expensive by the purchase of said lands from private owners as to greatly delay the completion of the irrigation systems contemplated by that act.

The reports of the special agents of this Department in the field show that at some of the local land offices carloads of entrymen arrive at a time, every one of whom makes entry under the timber and stone act. The cost of 160 acres of land under that act, and the accompanying commissions, is $415. As many as five members of a family, who, it can be readily shown, never had $2,075 in their lives, walk up cheerfully and pay the price of the land and the commissions. Under such circumstances there is only one conclusion to be drawn, and that is that where a whole carload of such people make entry under that act, the unanimity of sentiment and the cash to exploit it must have originated in some source other than themselves.

In all such cases a rigid inquiry will be instituted to determine the bona fides of the entry, and if it be ascertained that the entry was not made in good faith, but in the interest of some person or persons other than the entryman, the entry will be promptly canceled and proper criminal proceedings instituted against the entrymen.

Another method resorted to by unscrupulous speculators to obtain timber upon the unreserved timbered lands, and to which the attention of the Department has been called by its special agents, is the location of so-called mining claims under the placer-mining laws. Quite a number of such claims have been located in fine bodies of timber in a number of the Western States. So far as the records of the Land Depart-

ment show, these lands are unappropriated public lands, and there is nothing to call the Department's attention to them, and it would never know of these locations unless reported by a special agent or the locator should apply for a patent. Assuming the land to be really mineral, so long as the locator does the annual assessment work required by law he will be entitled to maintain possession of the tract embraced in his mineral location. If it be made for speculative purposes only, and for the purpose of acquiring the timber within the limits of the location, the only way by which the Government can reach him will be by a careful investigation of the character of the land upon which the location is made, and if, after such investigation, it be determined that the land is not mineral in character and that the location is made for speculative purposes, to arrest the locator as soon as he begins to cut the timber. The only defense he can make will be to show that the land is mineral in character and that he is cutting the timber to develop his claim as allowed by law. Should he fail in that, he will have to pay the penalty.

From the foregoing it will be seen that the duty of protecting the public domain from the inroads of those who seek to despoil it is an onerous one, and is a matter that should receive the early and careful consideration of the Congress.

During the fiscal year ended June 30, 1902, there were 4,022 entries under the timber and stone act, embracing 545,253.98 acres, while during the last fiscal year there were 12,249 such entries, embracing 1,765,222.43 acres, an increase over the previous year of 8,227 entries and 1,219,968.45 acres. The increase in the activity of this class of entries affords food for serious reflection.

In the fall of 1902 reports of irregularities in the making of entries under this act, on the Pacific coast, were so numerous and persistent, that on November 18 of that year I directed the Commissioner of the General Land Office to suspend action on all entries made under said act in the La Grande, Lake View, Oregon City, and The Dalles land offices in Oregon, the Eureka, Redding, and Sacramento offices in California, and the Seattle and Vancouver offices in Washington, until proper investigation thereof could be made and their bona fides determined.

The reports of special agents detailed for that work are now being received by the General Land Office and this Department, and such action taken thereon as the facts appear to warrant. Where the entries are shown to be bona fide in character, and covered by the letter and spirit of the act, they are promptly passed to patent. Where it appears that they have been made for speculative purposes or in the interests of some person or persons other than the entrymen, a hearing is ordered under the departmental circular of August 18, 1889 (29 L. D., 141), and the entrymen cited to show cause why the entry should not be canceled.

Notwithstanding the extreme care exercised by this Department to protect the public timbered lands from unlawful acquisition under this act, the entries thereunder have, nevertheless, as stated, increased vastly in number.

The act, when legitimately observed and followed, affords such facilities for the acquisition by individuals and corporations of vast

bodies of the public timbered lands, that it is one of the greatest menaces on the statute books to-day against the avowed policy of the Government to preserve the remaining public lands for homes for actual settlers.

Further experience in the administration of this law confirms the opinion heretofore expressed as to the necessity for remedial legislation and causes me to renew with earnestness the recommendations above mentioned on this subject.

THE COMMUTATION CLAUSE OF THE HOMESTEAD LAW.—The commutation clause of the homestead law does not present the same serious objections as the law above mentioned, for the reason that the timber and stone act requires no residence whatever on the land; this does, but the brevity of the residence required does not tend to carry out the purpose of Congress in the enactment of the homestead law, namely, the acquisition of homes and the building up of communities, but tends rather to encourage speculation in the public lands under cover of that law. After fourteen months' residence and cultivation and the payment for his land, the entryman is entitled to his patent, and is at liberty to leave the community, abandon his homestead, and allow it to remain unimproved for years—an impediment to the progress of the community in which it may be located.

The Commissioner of the General Land Office in his report calls attention to the fact that it is only in exceptional cases that the homesteader who has settled upon a tract of public land with the bona fide intention of making it his actual and permanent home finds it necessary to abandon it before the expiration of five years from the date of his settlement, and he recommends, for reasons stated, the repeal of the timber and stone act and the commutation clause of the homestead act.

THE DESERT-LAND ACT.—This act, unless amended as recommended by the Commissioner in his report, by eliminating from said act the provision that permits the assignment of entries before final proof, should be repealed.

The right of assignment as shown by the Commissioner in his report is contrary to the fundamental principle underlying the public land laws, that entries should be made for the exclusive benefit of the entrymen and not for the benefit of any other person, and practically abrogates the restriction of the act limiting one person to one entry in a compact form, the actual limitation being 320 acres, which might embrace a number of noncontiguous tracts taken by assignment.

Without being so amended the law bears on its face its own condemnation in the facility it affords for the acquisition by individuals, associations, and corporations, of vast bodies of the public domain, and is another menace to the avowed policy of the Government of preserving the remaining public lands for homes for actual settlers.

UNLAWFUL FENCING OF PUBLIC LANDS.—In my last annual report, beginning at page 11 thereof, I set forth at length and in detail the difficulties with which this Department has to contend in its efforts to prevent the unlawful fencing of public lands by that class that seeks to occupy them for grazing purposes.

Without a repetition of the matters set forth in that report, the summary showed 153 cases of unlawful fencing of public lands, embracing 3,952,844 acres, for the fiscal year ending June 30, 1902. Of that number, 9 inclosures, embracing 24,564 acres, were removed, and 144 cases, embracing 3,928,280 acres, were reported as in process of removal or as having been laid before the United States attorneys of the various States and Territories for action under the act of February 25, 1885 (23 Stat. L., 321). The vigorous policy pursued by the Department during the past year has resulted in the diminution of the number of cases reported and of the acreage embraced within such unlawful inclosures, the total number of cases reported during the year, as shown by the records of the General Land Office, being 135, embracing 2,605,390 acres. Seventy-nine of these fences, inclosing 1,975,450 acres, have been reported removed, in compliance with notices given by special agents. Proceedings are pending to compel the removal of 56, inclosing 629,940 acres.

It is hardly probable, however, that the reported cases include all of the inclosures maintained in violation of law. There are doubtless many others to which the insufficient force of special agents with their multitude of other duties have not yet been able to give attention. The trespassers, however, are beginning to show a gratifying disposition to remove their fences without compelling the Department to resort to the courts. The Department is active in preventing or removing the unlawful inclosure of public lands, and has instructed its special agents to render all possible aid to United States attorneys having charge of any of these cases.

During the year the Department of Justice, on the recommendation of this Department, directed the United States attorney for New Mexico to institute proceedings under the act of February 25, 1885 (supra), against the San Vincente Cattle Company, of that Territory, to secure the removal of its unlawful inclosure, embracing 9,080 acres. The Acting Attorney-General, in a letter dated November 10, 1903, informs me that this suit was filed September 29, 1902; that in April, 1903, a special agent of the General Land Office, having investigated the fences, furnished his own and several other affidavits to the effect that the fences had been removed. A judgment of dismissal of the case was entered at the April term of court, with costs against the defendant company.

One of the most celebrated cases of this character brought to the attention of the Department during the past year was that of the West

End Ranch, in Cheyenne County, Kans., owned by the Dewey Cattle Company and managed by Chauncy Dewey, the latter being a son of C. P. Dewey, said to be the principal stockholder in the Dewey Cattle Company. Within the past three years 62 miles of fence have been erected by said company in townships 4 and 5 south, ranges 35, 36, and 37 west, which, connecting with 18 miles of fence owned by others, makes a total length of 80 miles. This fence inclosed an area, all told, of 51,040 acres, of which 3,240 acres are State lands, 1,200 are embraced in eight homestead entries, and 7,440 acres are vacant public lands subject to entry under public land laws.

The inclosure of homesteads by the unlawful fences of that company was the primary cause of the trouble which resulted in the killing, on or about June 3 last, by Chauncy Dewey and his employees, of three members of the Berry family at the home of Alpheus Berry, near the Dewey ranch.

It appears to have been the policy of Dewey and his agents and employees to gain complete and exclusive control of all the lands inclosed by their fences, and to adopt whatever measures were found necessary to accomplish that purpose, sparing neither life nor property. Their attitude toward settlers and homesteaders without, as well as within, their inclosure is shown by reports of agents of this Department and by individual complaints to have been extremely hostile and oppressive. Not only have the crops of these bona fide homesteaders and settlers been destroyed by this company's cattle, but the people themselves harassed and intimidated by threats of violence made by its agents and employees, their fences cut and dwellings deliberately moved off their homesteads, and a number of them have been compelled by this outlawry to abandon their entries and seek residence elsewhere.

Promptly upon hearing of these unlawful acts the Department instituted an investigation, as a result of which proceedings were begun, through the Department of Justice, under the act of February 25, 1885 (supra), to cause the removal of these illegal fences and to punish those guilty of erecting and maintaining them. At the October, 1903, term of the United States district court at Leavenworth, Kans., the grand jury, then and there in session, indicted C. P. Dewey, Chauncy Dewey, W. J. Ratcliffe, William J. McBride, and Louis McBride for violation of sections 5440 and 5508 of the Revised Statutes, in conspiring to threaten, intimidate, and injure Alpheus Berry, a bona fide homestead settler upon lands unlawfully inclosed by their fences, and for taking the life of said Berry. Six other counts were found against the defendants for their molestation of other settlers. An indictment was also found against Chauncy Dewey, as the agent of C. P. Dewey, for erecting and maintaining an unlawful inclosure of public lands in violation of the act of February 25, 1885 (supra).

FOREST RESERVES.

There are now 53 forest reserves, created by Presidential proclamations under section 24 of the act of March 3, 1891 (26 Stat. L., 1095), embracing 62,354,965 acres. This is an increase over last year of 2,179,200 acres.

Two additional forest reserves have been established; two have been slightly reduced in area. The following consolidations have been made: The Yellowstone and Teton forest reserves, in Wyoming, and the Absaroka Forest Reserve, in Montana, have been consolidated under the name of the Yellowstone Forest Reserve; the Lewis and Clarke and Flathead forest reserves, in Montana, have been consolidated under the name of the Lewis and Clarke Forest Reserve. In both of these consolidations additional areas were included. In the last-named case there was also an elimination of certain lands.

FOREST-RESERVE FIRES.—During the last fiscal year there were 597 camp and other small fires discovered in the forest reserves by the forest force and extinguished while in the incipient stage and 279 fires which had passed beyond that stage. Some few of these larger fires got beyond control and burned over a considerable area before being put out. In August and September, 1902, there were many devastating forest fires throughout the western country, the forest reserves being, of course, subject to the conditions that made these great fires possible. The forest reserves, however, protected by watchful officers well equipped for discovering or attacking fires, were to a notable degree exempt from the large fires prevailing at that time. The total area burned over, however, for the year was larger in the total than during the preceding year. The most extensive forest-reserve fires occurred in August and September in the Cascade Range in Oregon, Mount Rainier in Washington, and Teton in Wyoming, and before the appointment of the forest force there, in the Medicine Bow, Wyoming, where a total area of 240,497 acres was burned over during those months. Aside from these areas but 39,245 acres of forest-reserve lands were burned over during the fiscal year.

The good effect of the forest-fire law, and of the education of the people by the forest force, is shown in the decreasing number of camp and other small fires discovered by the forest rangers. In 1901 there were discovered 1,335 such fires; in 1902 there were 1,083, and in 1903 there were 597, although there was a material increase each year in the area reserved and for which fire reports were made.

SALES OF TIMBER IN FOREST RESERVES.—There were pending at the beginning of the year 85 petitions for sale of timber in forest reserves, and 248 were presented during the year. Of these 156 were granted and sales effected, 59 were refused or abandoned by the applicants, and 118 were pending at the end of the year. The sums realized from this

source during the year and paid into the Treasury amounted to $45,838.08.

FREE USE OF TIMBER IN FOREST RESERVES.—The applications received during the year for free use of timber in forest reserves numbered 2,166, nearly double the number received during the preceding year. There were approved 2,135 applications, involving timber to the amount of 2,738,567 board feet and 35,838 cords. Of this quantity more than one-half was dead timber, the removal of which has been of benefit to the reserve.

SAWMILLS IN FOREST RESERVES.—The Department recognizes that sawmills are necessary to the utilization, for many purposes, of the timber in forest reserves which is sold or given away, and that a sawmill operated within the reserve under a proper contract with the Department and guaranteed by a good and sufficient bond is much less likely to prove injurious to the reserve than is a mill located outside the line and operated without these restrictions. Permits have therefore been granted in all cases where the applicants were shown to be reliable and of good repute, and the interests of the people to be thereby served. The sawmills operated under such permits are at all times subject to the careful supervision of the forest officers.

MISCELLANEOUS PRIVILEGES IN FOREST RESERVES.—Under this head are included the construction of wagon roads, establishing and conducting of road houses, public stopping places, hotels, stores, and the privilege of hay cutting, etc. Such applications were received to the number of 166, being more than double the number received during the year previous. About one-half of these applications have been allowed, one-fourth rejected, and the rest returned for amendment or supplemental report, or are yet awaiting action.

FOREST RESERVE LIEU SELECTIONS.—Of forest reserve lieu selections there were pending July 1, 1902, 4,163 cases, involving an approximate area of 892,558.93 acres. There were received during the last fiscal year 2,159 cases, involving an approximate area of 734,651 acres. Of this number, 729 cases were approved for patent and 189 rejected, making 918 finally disposed of, and embracing an area of 363,973 acres. There were pending June 30, 1903, 5,504 cases, involving an approximate area of 1,263,236.93 acres.

The Commissioner of the General Land Office recommends that the act of June 4, 1897 (30 Stat. L., 36), as amended by the act of June 6, 1900 (31 Stat. L., 614), be further amended so that only nontimbered land may be taken in lieu of land within a forest reserve, for the reason that in the exchange of land within a forest reserve for other public land it frequently occurs that land from which the timber has been cut is exchanged for land heavily timbered. This is manifestly unfair to the Government, but can not be prevented under the law. While it is considered to be impracticable to require that only land of like value

shall be taken in exchange for land in a reserve, it might be provided that timber land should not be selected in lieu of such land, just as mineral land is now excepted from such selection. There would be no hardship in this restriction, as the timber can be taken off the land in the reserve before the exchange is made, and in fact this is generally done. In addition to this is the fact that these exchanges are optional as to the owner of land in a reserve. He is not obliged to make the exchange. I concur in the Commissioner's recommendation, as above, for legislation that will do away with the present unfair privilege by which untimbered lands in forest reserves, held in private ownership, may be exchanged for an equal area of public timbered lands outside the reserves.

TRANSFER OF THE ADMINISTRATION OF THE FOREST RESERVES TO THE DEPARTMENT OF AGRICULTURE.—In his report the Commissioner of the General Land Office says:

> The work of establishing a forest service for the care and administration of the reserves, which was begun in the summer of 1898, has been developed along such practical lines as fall within the province of the Interior Department. The experience of these five years abundantly testifies to the need for efficient work of a scientific character.
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> The dangers to which the reserves are exposed from fires, timber depredations, and other sources, make the establishment of an efficient protective force a matter of great importance. Following closely upon that, however, must come the application of scientific methods in dealing with the many and varied forest problems in connection with the various industries affected thereby.
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> The magnitude of the interests affected and the intricacies of the problems involved make it evident that the development of forestry in the United States, in connection with our Federal forest reserves, calls for the application of a system of scientific forestry upon a scale in proportion to the work to be performed. Elementary efforts need to give way in the course of development of such a system. It would seem, therefore, that the stage had been reached when the work should be committed to the care of men who have had the scientific and practical training needed to fit them to cope with work involving such far-reaching issues.
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> The Bureau of Forestry of the Department of Agriculture is properly organized and equipped to carry on this branch of the work.
>
> The administrative features of forest reserves also are at present in a very unsatisfactory condition. In the creation of a new reserve three separate bureaus must act before a definite recommendation is made—the Bureau of Forestry of the Department of Agriculture, the Geological Survey of the Interior Department, and this office. Such a division of jurisdiction and responsibility is not conducive to the best results. I think it would be very much better to have the matter of the location and control of forest reserves all in one bureau. I therefore recommend that all business in the General Land Office pertaining to forest reserves, except lieu-land selections and other matters pertaining to or affecting titles, be transferred to the Bureau of Forestry of the Department of Agriculture.

In my report for the year ending June 30, 1901, I expressed myself on this subject as follows:

> Forestry, dealing as it does with a source of wealth produced by the soil, is properly an agricultural subject. The presence of properly trained foresters in the Agricultural Department, as well as the nature of the subject itself, makes the ultimate

transfer, if found to be practicable, of the administration of the forest reserves to that Department essential to the best interests, both of the reserves and of the people who use them.

I am still of the opinion therein expressed, and concur, therefore, in the recommendation of the Commissioner, as above set forth.

CATTLE AND HORSE GRAZING IN FOREST RESERVES.—For the grazing season of 1901 there were 1,926 permits issued to graze 277,621 head of horses and cattle in 32 reserves; for 1902 there were 2,642 permits issued to graze 357,552 head in 37 reserves; and for 1903 there were 4,121 permits to graze 529,973 head in 44 reserves.

The grazing of a moderate number of horses and cattle is not regarded as injurious to the reserves, and as a rule the number permitted each season is sufficiently liberal to accommodate all of such stock that had grazed on the lands before they were included in the reserve. The forest officers, however, have been instructed that the enlargement of herds and the shipping in of cattle for the purpose of filling the quota allowed any reserve will not be permitted; that the liberal allowance is for the purpose of accommodating the stock that has naturally grazed on the reserve lands in the past, and if this stock does not fill the quota the same is to remain unfilled.

SHEEP GRAZING IN FOREST RESERVES.—For the grazing season of 1901 the Department authorized the grazing of 1,400,000 head of sheep in all or parts of 8 reserves; 391 permits were issued, covering 1,214,418 head. For the season of 1902 these same reserves were opened to 1,197,000 head, and 484 permits were issued, covering 1,151,513 head, and in 1903 they were opened to 877,000 head, when 320 permits, covering 812,328 head, were issued. In addition to these 8 reserves, parts of newly created reserves were, for the season of 1903, opened to the grazing of 601,400 head of sheep, and 113 permits were issued, covering 600,239 head.

In this connection your attention is called to the following:

The act of June 4, 1897 (30 Stat. L., 34–36), providing for the administration of forest reservations, provides that—

> The Secretary of the Interior shall make provisions against destruction by fire and depredations upon the * * * forest reservations, * * * and he may make such rules and regulations and establish such service as will insure the objects of such reservations, namely, to regulate their occupancy and use and to preserve the forests thereon from destruction; and any violation of the provisions of this act or of such rules and regulations shall be punished as is provided for in the act of June fourth, eighteen hundred and eighty-eight, amending section fifty-three hundred and eighty-eight of the Revised Statutes of the United States.

The act of June 4, 1888 (35 Stat. L., 166), amending section 5388 of the Revised Statutes, reads as follows:

> That section fifty-three hundred and eighty-eight of the Revised Statutes of the United States be amended so to read as follows: "Every person who unlawfully cuts, or aids or is employed in unlawfully cutting, or wantonly destroys or procures to be

wantonly destroyed, any timber standing upon the land of the United States which, in pursuance of law, may be reserved or purchased for military or other purposes, or upon any Indian reservation, or lands belonging to or occupied by any tribe of Indians under authority of the United States, shall pay a fine of not more than five hundred dollars or be imprisoned not more than twelve months, or both, in the discretion of the court."

Under the authority of the said act of June 4, 1897, the Secretary of the Interior formulated and promulgated rules and regulations "to insure the objects of such reservations" and "to regulate their occupancy and use," among which was one prohibiting the grazing of sheep and goats in all reserves or parts of reserves in which it appeared after due investigation that grazing of such animals worked an injury to the reserve and the interests depending thereon, preventing a proper protection and improvement of the forests for the purpose of insuring a permanent supply of timber, and adversely affecting the conditions favorable to a continuous water flow and the water supply of the people. In some instances forest reserves are created for the sole purpose of conserving the water supply of communities, having in view the rules which prohibited the grazing, which pollutes such waters. In other cases large areas are under irrigation, the water for which came from the reserves. In still other cases the young growth of trees need protecting from destruction. In no case does the Department prohibit grazing where material injury will not be done by live stock. In view of these facts it is very essential that the most effective means possible for the enforcement of the rules and regulations be provided, and no doubt Congress had this in mind when it provided in said act of June 4, 1897, that any violation thereof should be punished as provided in the said act of June 4, 1888. The courts, however, have held that a criminal prosecution will not lie to punish a person for such violation.

In the case of the United States *v.* Blasingame (116 Fed. Rep., 654), and in the case of the United States *v.* Camou in the United States district court for northern California, the courts held that "in so far as" the act of June 4, 1897, "declares to be a crime any violation of the rules and regulations thereafter to be made by the Secretary of the Interior for the protection of the forest reservations is in substance and effect a delegation of legislative power to an administrative officer," and, therefore, unconstitutional. As the result of said decision the orders of the Secretary prohibiting grazing have repeatedly been defied and great injury has been done to the reserves by sheep grazing therein. Whether or not the said decisions would stand the test of trial in a higher court need not, and should not, be considered, because there is no right of appeal in such cases.

The honorable Attorney-General in his annual reports for 1899 and 1900 urged upon Congress the necessity for providing, by suitable

legislation, for an appeal on the part of the Government in cases of decision adverse to the United States by the courts upon demurrers interposed to indictments.

Proceedings by injunction are not effective because the damage is done before the injunction can be obtained.

In a letter to Hon. George C. Perkins, written in January, 1902, Mr. George W. Stewart, who is the register of the land office at Visalia, Cal., in referring to conditions in the Sierra Forest Reserve, states:

> Before the rangers were placed on duty forty-three bands of sheep passed through or trespassed on the reserve, the total amounting to about 100,000 sheep. They trespassed all the way across.

He also said:

> In a list of twenty-three trespassing sheep men, which I have in my possession, but one was an American. The remainder were French, Basques, and Portuguese, most of them wanderers with their bands.

This was during the year 1901.

On August 6, 1902, Forest Supervisor White advised the General Land Office as follows:

> About the middle of July sheep began to enter the reserve, and within three days thereafter ten bands, numbering about 20,000, were in the southwestern division of the Sierra Reserve. The owners were all Basque French, and each was in possession of a letter from the Wool Growers' Association of San Francisco, advising them that under the recent decisions of Judges De Haven and Welborn they had the right to graze their sheep on the reserve; they also had letters from a branch of said organization located at Bakersfield, Cal., advising them to take their sheep to the reserve and keep them there, as no one had the right to remove them.
>
> The owners claimed that these letters gave them the right to remain, and that they would resist any attempt to remove them. * * *
>
> Fully four-fifths of the owners are not citizens—are transitory, owning no property except sheep, and have no fixed place of abode. But very few are making an effort to, or expect to, become citizens of this country.

During the season of 1902 about 60,000 sheep trespassed in the Sierra Reserve in open violation of the Department rules, and, as expressed by Superintendent Newhall, the Stanislaus Reserve was overrun with trespassing sheep. Similar trespasses have also occurred in other reserves, and there appears to be a disposition in many quarters to disregard the forest reserve rules and regulations, now that the courts have held that violators thereof can not be held criminally.

The courts have, however, issued injunctions against persons committing or attempting to commit trespass with sheep, the leading case being that of the United States *v.* Dastervigne, decided by the circuit court of appeals in California and reported in 122 Fed. Rep., 30. Proceeding by injunction, however, is of but little avail in most cases in the protection of the forest reserves. As illustrating the delays in

obtaining injunctions, note the following report from Forest Superintendent C. S. Newhall, under date of July 9, 1901:

Early in May three sheep owners acting together, and later two others, took their sheep into the Sierra Forest Reserve * * * regardless of the repeated warnings of the rangers. On May 25 I reported the cases to the United States district attorney. * * * Under date of June 19 Mr. Flint wrote me that he had "filed five bills in equity" against the parties, but that "Judge Wellborn declines to issue an injunction without a hearing, which has been fixed for July 1." The hearing was continued to July 10, and on July 31 the court issued an order of injunction against the parties, so that the sheep of these five parties were illegally, and in violation of the rules, in the reserve three months. In May, 1903, there were seventeen bands (about 40,000 head) of sheep trespassing in the Sierra Reserve.

The forest superintendent advised the United States attorney thereof. The said attorney asked the honorable Attorney-General for instructions, stating that—

In order to reach the defendants to serve papers on them, the marshal would be obliged to travel a very great distance, * * * either going by way of Sacramento, Cal., and Reno, Nev., thence to Independence, Inyo County, a distance of 619 miles, or by way of Mohave and to Independence by stage, a distance of about 400 miles from Fresno, there being no deputy marshal east of the mountains to whom the papers could be sent.

Owing to repeated complaints of sheep trespass in the Big Horn Forest Reserve in Wyoming, a special inspector was detailed to investigate the same and report thereon. His report, under date of October 22, 1903, is as follows:

During the past season there have been a number of willful trespassers on the Big Horn Reserve, and in several instances the parties in question have been old offenders, having been persistent in causing trouble for several seasons past.

Various conditions have combined to make it difficult for the forest officers to remove these trespassers from the reserve, and of this fact no one apparently was more cognizant than the trespassers themselves, who took every advantage of these conditions.

Exclusion of sheep from the Shoshone Division of the Yellowstone Reserve and the vigorous manner in which this restriction was carried out there, drove many of the transient sheep men to seek other ranges, and there appears to have been a general exodus to this reserve.

Trouble between settlers and sheep men in the Paint Creek country and other localities probably had something to do with some of the parties who trespassed, but in a majority of cases the trespassers came on the reserve for the sole purpose of securing summer grazing.

In these cases the supervisor did his best to remove the trespassers from the reserve, but was cautioned to use no violence, and consequently was unsuccessful in keeping any of them off the reserve, as they were apparently well informed as to all the instructions he received from time to time, made fun of him at various times, and refused to leave when ordered to do so by forest officers.

In many cases unavoidable delays were occasioned, because it was often a difficult matter to secure the names of owners of the sheep that were trespassing on the reserve.

These sheep men seem to have the happy faculty of changing owners every season, or when there is danger of getting into trouble on account of trespasses, and although it is the same sheep that have been on the reserve the past three summers, the owners have changed with due regularity each season. This is done so that when brought before the court it is always possible to plead a first offense and receive a minimum fine.

Another cause of delay in securing injunctions against trespassers is the time consumed in procuring affidavits from rangers in the field and the length of time consumed in sending papers back and forth from the United States attorney at Cheyenne to the supervisor at Big Horn.

In some instances rangers had to travel 75 miles to swear to affidavits before a notary public, while, as a general rule, they had to go at least 40 miles for such service.

It is always a difficult matter to secure accurate information in regard to these trespassers, yet such information is necessary before any action can be taken in the courts.

The owners of these sheep could seldom be found, the herders, who were usually Mormons or Mexicans, had just forgotten all they knew, and the forest officers were obliged in many cases to acquire their information from settlers who were acquainted with the facts in the case. All these delays combined to give the forest officers much trouble and allowed the trespassers to get summer grazing for their flocks, and I do not see how this can be remedied in the future unless the supervisor has authority to remove at once all trespassers who come on the reserve. So far trespassers here have been so successful in getting out of these cases with a light fine that they will undoubtedly be back next year unless some more stringent regulations are enforced.

The trespassers this year, with one exception, are Mormons, who give their address as either Cowley or Lovell, Wyo.

The parties who handle the sheep do live here, but the real owners live in Salt Lake City, Utah, although Wyoming is claimed as their residence, probably to give them a better excuse for using the grazing lands on the Wyoming Forest reserves.

Six different bands, aggregating 12,400 head, entered the reserve from June 5 to 15, and injunction notices were not served on the owners until September 3. Concerning these parties the inspector says:

All of these parties are undoubtedly together in the ownership of these sheep, and it is the general impression they have combined to test the grazing regulations in force on our forest reserves.

These parties all ignored the injunctions that were served on them, and remained on the reserve until they were ready to leave, which was not until October in some instances.

Two other parties, with 12,000 head, entered the reserve between July 1 and 10, and injunction notices were not served on them until October 9.

Here, then, were 24,400 sheep which trespassed for between three and four months because of the necessarily slow proceedings in obtaining injunctions.

These are but a few illustrations of the difficulty of protecting the reserves by injunction proceedings and showing the necessity for legislation prohibiting the grazing of stock in the reserves without a permit so to do.

In view of all these facts, and of the importance of effectively protecting the great interests depending on the forest reservations, I have, on the recommendation of the Commissioner of the General Land Office, transmitted to Congress, with the recommendation that it be enacted into law at the earliest practicable date, a draft of a bill, as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That every person who knowingly pastures or causes to be pastured any live stock upon public lands of the United States situated within a forest reserve without first having obtained a permit so to do under rules and regulations prescribed by the Secretary of the Interior shall, upon conviction, be punished by a fine not to exceed one thousand dollars, or by imprisonment for not longer than one year, or by both such fine and imprisonment.

CEDED CHIPPEWA LANDS IN MINNESOTA.—The examination of ceded Chippewa lands in Minnesota under the act of January 14, 1889 (25 Stat. L., 642), as amended by the act of June 27, 1902 (32 Stat. L., 400), was resumed by a corps of examiners in the employ of the General Land Office on December 15 last. The first examination completed was that of lands in the former Chippewa of the Mississippi and Winnibigoshish Indian reservations, including 159,313.18 acres, of which 96,196.44 acres were classified as "pine" lands, on which there were estimated to be 127,512,000 feet of pine timber. The examiners then moved to the Red Lake Reservation, where they examined to September 21, 1903, an area of 775,135.90 acres, of which 24,245.34 acres are reported as "pine" lands, estimated to contain 26,878 feet of timber.

On March 2, 1903, the first sale of pine timber under the acts cited was held at the district land office at Crookston, Minn., there being offered 20,678,000 feet of pine, described as being on 12,210.77 acres in sections 16 and 36 on the Red Lake and four ceded townships on the White Earth Indian reservations. Sealed bids were received for 14,771,000 feet of timber, estimated to be on 7,737.18 acres, the bids ranging from $5 to $6.05 for white pine and $4 to $4.75 for Norway, and aggregating $68,674.70. There were no bids received on 5,907,000 feet of timber, described as being on 4,474.59 acres, doubtless due to the fact that more than the amount of timber mentioned had been removed by authority of the State and settlement made therefor.

On May 29, 1903, notice was given of the sale under the acts cited at the district land office at Cass Lake, Minn., to be held on December 5, 1903, of 234,407,500 feet of pine timber on 109,757.34 acres of land in the Leech Lake and parts of the Chippewa of the Mississippi and Winnibigoshish Indian reservations, and on June 20, 1903, notice was given of the sale to be held at the same place on December 28, 1903, of 95 per cent of the pine timber on 89,708.83 acres, estimated to contain 187,237,000 feet of timber, included in those parts of the Cass

Lake and Chippewa of the Mississippi reservations selected for the Minnesota National Forest Reserve.

On September 22, 1903, I approved a schedule of 687,321.13 acres of agricultural ceded lands in the Red Lake Reservation in Minnesota, and authorized and directed that said lands, together with 81,525.07 acres of agricultural lands in sections 16 and 36, in the Red Lake, and 4 ceded townships of the White Earth reservations in said State, be opened at 9 o'clock a. m., on Tuesday, November 10, 1903, to settlement and entry under the provisions of the homestead law, with certain modifications set forth in the instructions to the registers and receivers at Crookston, Cass Lake, and Duluth, Minn., approved by me on September 22, 1903.

It is believed that the revenue inuring to the Indians from the sale of the timber from these lands, under the provisions of the act of June 27, 1902 (32 Stat. L., 400–404), known as the Morris Act, amending section 4 of the Nelson Act of January 14, 1889 (25 Stat. L., 642–646), will be greatly in excess of what would have been received under the provisions of the old law, it being estimated that the returns to the Indians will aggregate $3,000,000, as against $500,000 had the conditions remained unchanged.

RESURVEY OF SOUTH BOUNDARY OF COLORADO.—Congress, by act of July 1, 1902 (32 Stat. L., 574), appropriated $31,500 for the resurvey and reestablishment, on the line of the thirty-seventh parallel of north latitude, of the boundary line between the State of Colorado and the Territories of New Mexico and Oklahoma, and under date of July 7, 1902, the Commissioner of the General Land Office, with the approval of the Department, entered into contract for the resurvey of said boundary, the estimated liability of the contract being $29,000.

While the returns of this survey are not yet at hand, the work in the field, I am informed, has been carried to the point of completion, and the maps and field notes are now in course of preparation.

The entire line has been conspicuously monumented and an inspection of the work has been made by an experienced astronomer and examiner of surveys connected with the General Land Office. The field notes and report of this inspection have been filed with the Commissioner of the General Land Office, who will take final action upon receiving the surveyor's maps, field notes, and astronomical observations.

From the report of the examiner it would appear that this boundary has now been correctly established, and it is hoped that there will be no further doubt as to the position of the line dividing the State of Colorado from the Territories of New Mexico and Oklahoma.

INDIAN AFFAIRS.

The total Indian population of the United States remains about the same as last year, approximately about 270,000, of which the Five Civilized Tribes and New York Indians embrace about 90,000, leaving about 180,000 occupying 156 reservations, containing 55,127,000 acres outside of the Indian Territory and the State of New York.

One thousand six hundred and nineteen allotments were made during the year, the area thereof being approximately 211,326 acres. Allotments in severalty aggregating 8,823,000 acres have been made since the passage of the general allotment act (February 8, 1887, 24 Stat. L., 388) to approximately 73,040 Indians.

General conditions among the Indians have been satisfactory during the year, no serious trouble having occurred. The marked progress toward civilization noted in recent years still continues, more Indians than ever before having engaged in industrial pursuits and in earning a livelihood for themselves and families.

In pursuance of the policy adopted by the Department under authority of law, the abolishment of Indian agencies, and the devolving of the duties appertaining thereto upon bonded superintendents in charge of Indian training schools located at such agencies, has been continued, with the result that the number of agencies provided for in the appropriation for the present fiscal year is 33, as against 43 for the past year.

Great emphasis is placed upon this policy by the Indian Department (see report of Commissioner of Indian Affairs), and it is claimed that it meets the conditions which will best enable the Indian to break away from ancient tribal traditions and influences, and to become self-supporting.

The policy of requiring Indian allottees to work portions of their allotments has been continued during the year, thus, by their industry, largely contributing to their support.

The New York Indians number 5,232, and occupy eight small reservations of about 88,000 acres in the northwestern part of the State of New York. These Indians receive small annuities in money and goods under treaty stipulations. The Cherokee, Chickasaw, Choctaw, Creek, and Seminole, known as the Five Civilized Tribes, located in Indian Territory, including freedmen, number about 84,500, and occupy reservations whose aggregate area is 19,475,614 acres. More than 300,000 noncitizen whites are said to be living on the lands of the said tribes. Allotments to the Creeks have been practically completed, and allotment work in the Choctaw and Chickasaw nations and the Cherokee Nation is progressing.

Indians were largely employed during the year in the agency and field service, as harnessmakers, shoemakers, blacksmiths, herders, butchers, teamsters, police, and in like occupations, and in the school

service as nurses, matrons, clerks, cooks, laundresses, and as industrial and other teachers, whose salaries aggregated nearly $600,000.

FINANCIAL.

APPROPRIATIONS.—The amount appropriated by the Indian appropriation act for the fiscal year ending June 30, 1904, is $8,521,306.77. For the fiscal year ending June 30, 1903, the sum of $9,132,028.10 was appropriated, and in the general deficiency act of March 3, 1903, the additional amount of $40.245 was appropriated, making the total appropriation for the fiscal year 1903 $9,172,273.10.

The appropriations for the fiscal years 1903 and 1904 for the different objects for the Indian Service are shown in the following table:

	1903.	1904.
Current and contingent expenses	$727,640.00	$727,940.00
Fulfilling treaty stipulations	2,249,377.69	2,181,638.35
Miscellaneous supports, gratuities	745,000.00	649,000.00
Incidental expenses	93,400.00	93,400.00
Support of schools	3,539,465.00	3,522,950.00
Miscellaneous	818,022.41	1,346,383.42
Capitalization of annuities	999,368.00	
Total	9,172,273.10	8,521,306.77

The difference in the appropriation for 1904 is a decrease of $650,966.33 from that for 1903, and is explained as follows:

Decrease from 1903:		
Fulfilling treaty stipulations	$67,744.34	
Support of schools	16,515.00	
Miscellaneous support	96,000.00	
Capitalization of annuities	999,368.00	
Total		$1,179,627.34
Increase over 1903:		
Current and contingent expenses	300.00	
Miscellaneous	528,361.01	
Total		528,661.01
Decrease for 1904 from 1903		650,966.33

EXPENDITURES.—The expenditures on account of the Indian Service for the fiscal year 1903 from moneys appropriated, from trust funds, and from miscellaneous sources, in all aggregating $12,935,168.08, were as follows:

Current and contingent expenses	$719,242.59
Fulfilling treaty stipulations	1,560,085.90
Miscellaneous support, gratuities	489,418.74
Trust fund	3,578,784.65
Incidental expenses	69,836.81
Support of schools	3,161,438.61
Miscellaneous, including items appropriated prior to 1902	3,356,360.78
Total	12,935,168.08

INCOME.—The following was the income of the various Indian tribes from all sources during the fiscal year 1903: Interest on trust funds, $1,525,171.39; treaty and agreement obligations, $2,118,304.95; gratuities, $799,900; Indian moneys, proceeds of leases, labor, etc., $1,698,639.01; aggregating $6,142,015.35, as against $5,419,106.35 for the fiscal year 1902, an increase of $722,909.

EDUCATION.

During the fiscal year 1903 there were in operation 257 Indian schools, as against 249 the previous year. Of these, 26 were nonreservation boarding schools (one more than last year); 91 reservation boarding schools (one more than last year); and 140 day schools (six more than last year), with a total enrollment of 24,357 pupils and an average attendance of 20,876, against a total average attendance for 1902 of 20,540, or an increased average attendance for 1903 of 336.

In addition to those in Government schools, there was an average attendance of 3,506 in mission boarding and day schools, the Normal and Agricultural Institute at Hampton, Va., and in public schools, against an average attendance of 3,580 in 1902, a decrease of 74.

IMPROVEMENTS TO SCHOOL PLANTS.—The appropriation for the construction, purchase, lease, and repairs of school buildings, for sewerage, water supply, and lighting plants, etc., made under the general school appropriation for the fiscal year 1903, was $250,000, nearly half of which was used for repair work, and from the balance several new plants were erected. In addition to this appropriation, Congress provided for the use of the 26 nonreservation schools $389,450 for the erection of new buildings, water, sewer, and lighting systems, purchase of land, etc., and $76,600 for repairs and minor improvements.

For purchase of land and the erection of buildings to establish a school plant at Elko, Nev., $40,000 were appropriated, and $30,000 were given for school buildings at Tulalip Reservation to replace those destroyed by fire.

As tending to show the difficulties of educating Indian youth, the Commissioner of Indian Affairs, in his annual report, says, in which I concur:

> Indian education is hampered on the one side by the misguided, sentimental friendship of those who place the Indian upon too lofty a pinnacle, who contend that the white man's treatment of him in the present and in the past is cruel and inhuman, and, on the other side, by those who, in their greed for his lands and money, act upon the old theory, "No good Indian but a dead one." The Indian Office is the target of both these classes, who are prompt on all occasions to rush forward with advice as to the best methods of civilizing these people. Were the Department to follow these heterogeneous counsels, its policy would illustrate forcibly the fate of the man who shapes his conduct in accordance with the last counsels received, and inevitably winds up in disaster and ruin. There is probably no department of the Government to which free advice, abuse, and criticism are so lavishly given as to

that which is charged with the management of Indian affairs. The advice of those who are sincerely interested in the welfare of these people, who have no "ax to grind," and who have had opportunity to study the difficulties of the situation from a practical standpoint, is always of value and carefully considered. All wisdom relative to the management of the red man is not by any means assumed by the Indian Office.

IRRIGATION.

By reason of the increased appropriation for the fiscal year 1903 ($150,000) the irrigation work on the various reservations has been considerably extended.

The force of irrigation experts under the charge of the Commissioner of Indian Affairs has been kept busy in the field during the whole of the fiscal year, completing work already begun, making plans for and inaugurating new systems, and in making repairs and extensions to irrigation works in various localities.

The irrigation engineer of the Department, Inspector W. H. Code, has been almost continuously in the field, inspecting and reporting upon work already done or under way, consulting with and advising the irrigation engineers in the field, and giving his personal supervision to the execution of several important projects already approved by the Department. Among these may be mentioned two cases in which, after careful investigation, gravity canals were found to be impracticable, viz: The Pima Reservation in Arizona and the Mission reservations in California. In both cases efforts are being made, with a reasonable show of success in each, to establish a permanent water supply for irrigation purposes by means of a series of artesian wells, from which the water will be stored in reservoirs and conducted thence, as needed, into distributing ditches.

For several years efforts have been made by the Department to provide adequate irrigation facilities for the Indians residing upon the Southern Ute Reservation, in Colorado; but, though the subject has been most carefully studied by the Geological Survey and investigations and reports made by capable irrigation experts attached to the Department, no solution of the problem has yet been found, owing to the lack of a suitable and available source of water supply.

During the year a very important system of irrigation, conservatively estimated to cover about 20,000 acres of land on the Yakima Reservation, in Washington, was authorized by the Department, and the same is now being constructed under the personal supervision of the irrigation inspector.

A detailed account of the expenditures for irrigation during the year will be found in the report of the Commissioner of Indian Affairs.

ALLOTMENTS AND PATENTS.

Eleven hundred and ninety allotments have been approved during the year, as follows:

To Chippewa of Lake Superior on Lac Courte Oreille Reservation, in Wisconsin	112
To Sioux, at Rosebud Reservation, in South Dakota	1,071
To Swinomish, in Washington	7

Schedules of 429 other allotments have been received in the Indian Office, but have not yet been acted upon.

PATENTS.—Four thousand six hundred and eighty-seven patents have been issued and delivered to Indians in Idaho, Michigan, Minnesota, Nebraska, Oklahoma, and South Dakota.

The condition of the allotment work in the field is given in detail in the Commissioner's report.

LEASING OF INDIAN LANDS.

ALLOTTED LANDS.—Under the amended rules approved March 21, 1902 (mention of which was made in my last annual report), 3,600 leases for farming, grazing, business, and residence purposes were approved during the year, and 732 more are in the Indian Office for proper action.

UNALLOTTED OR TRIBAL LANDS.—During the year 204 leases and permits were granted, from which an approximate income of $125,582.02 will be derived.

INHERITED LANDS.

By the act of May 27, 1902 (32 Stat. L., 275), provision was made for the sale of allotments of deceased Indians under certain conditions, subject to the approval of the Secretary of the Interior.

Under the provisions of said act, rules governing such sales were approved by the Department June 26, 1902, but it was found that these rules did not fully protect the interests of the heirs of the deceased Indians, and all sales reported in accordance therewith were rejected and the deeds disapproved.

Amendments were then formulated and the rules, as amended, were approved October 4, 1902; among other things, the amendments providing that a list of such land as was to be offered for sale should be posted in the office of the Indian agent or other officer in charge for ninety days from the first Monday after a petition for the sale of the land had been filed.

Sealed bids were then to be received by such officer for any land so listed, at any time before the day on which bids were to be opened. A detailed statement in the report of the Commissioner of Indian Affairs shows that under these rules there have been sold, to and

including September 15, 1903, 44,493.99 acres of inherited lands, amounting to $757,173.25, being an average of $17.01 per acre.

Other amendments of an explanatory nature rather than amendatory were approved September 18, 1903, which provide that bids for inherited lands will be received up to 12 o'clock noon of the day upon which bids are advertised to be opened; that the envelopes containing bids should have noted thereon the dates upon which the same are to be opened, and not a description of the land, as formerly, and that a list of the lands offered for sale shall be published in the weekly edition of the newspaper of widest circulation in the county in which the lands are located. Copies of these rules, with amendments, are hereto appended, page 202, exhibit B.

A comparison of the prices agreed to be paid for inherited land under the original rules and the prices realized for the same land under the amended rules shows that the latter will average from 10 to 50 per cent higher than the former, and in a few cases a much higher rate of gain has been noted.

The increase in the price referred to is doubtless largely due to the fact that at the second offering it was more generally known that such lands were for sale and the public had become better acquainted with the manner in which the sales were to be conducted, and partly to the fact that lands of the character in question, situated as these were in available localities, were in great demand.

Enough land has been disposed of to thoroughly test the practicability of the rules, and it is believed that the interests of the heirs are as fully protected thereby as can be under the law without further experience; at the same time the rules are in no way complex, and leave to the heirs the free exercise of their discretion in determining whether or not they shall sell their inherited land.

The sales thus far perfected have been accomplished without evidence of dissatisfaction or criticism on the part of those interested, and but few sales rejected since the amended rules have been in force. From the number of petitions reported as being received at the various agencies it seems evident that the sale of inherited lands will continue active at least until the large number of such tracts has been disposed of, when the sales will necessarily diminish and in future depend upon the death rate from year to year among the allottees of the several tribes.

SALE OF ALLOTTED LANDS.

As hereinbefore indicated, the rules promulgated for the sale of allotments of deceased Indians, known as "inherited" lands (act of May 27, 1902, 32 Stat. L., 275), having proved of such a beneficial character, being especially advantageous to the interests of the heirs in that lands sold thereunder have brought better prices and yielded

larger returns than by any other method, the same, as far as applicable, have been extended to the sale of the allotted lands of certain living Indians whose allotments by special enactment of law may be sold for their benefit, as follows: Citizen Pottawatomies and Absentee Shawnees (acts of August 15, 1894, 28 Stat. L., 295, and May 31, 1900, 31 Stat. L., 247); of Wyandottes (act of June 10, 1896, 29 Stat. L., 343), and Peorias and Miamies (act of June 7, 1897, 30 Stat. L., 72), and of certain Chippewas, who hold patents containing restrictions as to alienation (treaty of September 30, 1854, 10 Stat. L., 1109).

The lands of the last-named Indians are understood to be chiefly valuable for their timber, and as timber is each year becoming scarcer, it is believed that by sales under the rules in question much better prices will be obtained than have heretofore been realized.

LOGGING ON INDIAN RESERVATIONS.

La Pointe Agency, Wis.—On the Lac du Flambeau Reservation 13 timber contracts were approved during the year. About 70 of the contracts already entered into with Cushway & Co. have expired and the timber has not been cut. The Department has fixed a scale of prices under which these contracts may be renewed, but the same has not been finally accepted by the contractors.

Bad River Reservation.—On this reservation contracts were made by Justus S. Stearns with 350 allottees before authority was granted by the President for the sale of the timber on their allotments. New regulations having been approved (December 29, 1902) to govern the sale of the timber on these allotments, and notice of the willingness of Department to permit the Indians to sell the same having been given, the Department on April 6 received bids from Mr. Stearns and four other bidders. These bids, however, were rejected April 11, 1903. Later the Department decided that in view of certain equitable considerations, the contracts theretofore made by Mr. Stearns with the Indians might be approved, with certain modifications, and they were so approved May 23, 1903.

Lac Court Oreilles Reservation.—Rules to govern the cutting and sale of the timber on allotted lands of this reservation were approved December 11, 1902, and authority was granted for the allottees to enter into contract with the successful bidders, Signor, Crisler & Co., but no contracts under said authority have yet been received for consideration.

Timber operations on the *Grand Portage Reservation* have been carried on under the regulations approved October 2, 1901, the same having been extended July 27, 1903, so as to expire October 2, 1904.

Green Bay Agency, Menominee Reservation.—Under amended rules approved by the Department December 15, 1902, the cutting and banking of saw logs by Menominee Indians were carried on. Depart-

ment also granted authority for cutting and banking 15,000,000 feet of green pine and hemlock during the season. The total amount covered by the authority was cut and banked, and the logs were sold by bank scale to the highest bidder, after due advertisement, for $16.30 per 1,000 feet.

Authority was granted February 12, 1903, for the cutting and banking of 5,000,000 feet of dead pine and hemlock during the year.

AGRICULTURE ON INDIAN RESERVATIONS.

As stated in my last annual report, one of the four special inspectors for this Department provided by the act of April 28, 1902 (32 Stat. L., 156), Mr. Levi Chubbuck, was assigned to duty to investigate the agricultural conditions on the various Indian reservations. Since July 7, 1902, Mr. Chubbuck has visited and reported upon the agricultural conditions and needs of 33 reservations.

It is believed that great good will result to the service from the work of this inspector, inasmuch as his reports keep the Department in closer touch with the agricultural conditions prevailing on the different reservations than would be practicable without such expert inspection, thus making it possible for the Department to take proper steps to improve those conditions when necessary, and stimulating the industrial teachers and farmers to greater and more intelligent efforts in behalf of the Indians under their charge.

COMMISSION TO THE FIVE CIVILIZED TRIBES.

Under section 16 of the Indian appropriation act of March 3, 1893 (27 Stat. L., 645), there was created by Congress the Five Civilized Tribes Commission. This Commission, commonly known as the "Dawes Commission," was during the first five years of its existence, save for a limited duty relating to the determination of citizenship rights, clothed only with authority to negotiate agreements with the Five Civilized Tribes, namely, the Choctaws, Chickasaws, Cherokees, Creeks, and Seminoles, looking to the dissolution of their tribal governments and the establishment of a State or Territorial government in their stead. After five years of fruitless negotiation, however, it was apparent that the accomplishment of such a purpose by agreement alone was a practical impossibility, owing to the unfavorable attitude of the Indians. Congress was therefore confronted with the alternative of abandoning its policy and abolishing the Commission, or else converting the Commission into an executive and semijudicial body and proceeding with the work, regardless, to a large extent, of the will of the tribes. The latter course was adopted and by the Curtis Act, approved June 28, 1898 (30 Stat. L., 495), the Commission was charged with the administration of the five great estates embraced in Indian Territory, aggregating nearly 20,000,000 acres.

The plan being to dissolve the system of tribal land tenure in vogue and vest the title to the lands in the individual members of the tribes, two great preliminary duties devolved upon the Commission: (1) To determine who were the bona fide citizens or heirs entitled to share in the distribution of the tribal property; (2) to take an inventory of the properties to be distributed. The first involved the hearing and determination of the applications of more than 200,000 claimants. The second consisted in surveying, platting, and appraising each 40-acre tract embraced in the territory to be allotted, making some 500,000 separate items of property to be dealt with.

These preparatory steps having been taken it remained for the Commission to distribute the property among the rightful heirs, approximately 90,000 in number. The territory to be allotted was not a wild, uncivilized, and sparsely inhabited country, but on the contrary a populous domain, dotted with modern towns and cities, traversed by a network of railroads, and resounding with the hum of industry. The undertaking was therefore a vast and difficult one, unprecedented in the history of civilization.

By recent legislation which gave Congressional approval to the supplemental agreements with the Creeks, Choctaws, and Chickasaws, and the agreement with the Cherokees, the Commission has been enabled to make rapid progress during the past year in the execution of the trust imposed upon it, and the work now begins to assume the aspect of completion. The location and valuation of the lands have been completed, and the enrollment work is practically finished, only a few fragments remaining to be disposed of. In the Seminole Nation allotment has been finished and in the Creek Nation allotment is practically completed. During the past year allotment offices have been established in the Choctaw, Chickasaw, and Cherokee nations and the work of allotting the lands of these tribes is well under way.

In its report for the fiscal year ended June 30, 1903, which is appended hereto, page 214, Exhibit D, the Commission sets forth in detail the progress of its work and recommends that the following legislation be enacted: (1) Provision for the sale of surplus lands of the Creek Nation under the direction of the Secretary of the Interior and for the benefit of the tribe; (2) provision for the sale, in a similar manner, of the surplus lands of the Seminole Nation; (3) provision requiring that plats of lands sought to be acquired by railroads under the provisions of the act of Congress approved February 28, 1902, be filed with the Dawes Commission; (4) provision for the sale, under sealed bids, of standing pine timber in the Choctaw Nation heretofore estimated by the Commission; (5) provision for the sale of coal and asphalt lands in the Choctaw and Chickasaw nations under sealed bids, rather than at public auction as provided by the agreement now in force with the Choctaws and Chickasaws; (6) provision for the

recording of leases, contracts, and instruments of conveyance executed by citizens of the Cherokee and Creek nations affecting the title of their lands; (7) provision for public highways in the Choctaw and Chickasaw nations.

SEGREGATED COAL AND ASPHALT LANDS.—Sections 56 to 63, inclusive, of the act of July 1, 1902 (32 Stat. L., 641), provide for the segregation and sale of coal and asphalt deposits within the limits of town sites, and also lands outside of town sites, principally valuable on account of their deposits of coal and asphalt, and also for the distribution of the proceeds to be paid out per capita to the members of the Choctaw and Chickasaw nations, except the freedmen.

An investigation was made by the Dawes Commission, with the aid of an expert geologist, of the lands coming within the provisions of said act, and on March 24, 1903, an order was made designating, by legal subdivision, tracts of land in said nations containing 444,983.03 acres, and reserving the same from allotment. Subsequently it was ascertained that there were certain errors in the total footing of the areas of the particular tracts, and that the exact number of acres should be 445,052.23.

Section 59 of said act requires that the lands segregated shall be sold at public auction for cash under the direction of the President, by a commission composed of three persons to be appointed by the President, one a Choctaw by blood, to be recommended by the principal chief of the Choctaw Nation, and one, a Chickasaw by blood, to be recommended by the governor of the Chickasaw Nation.

The experience of the Department in the sale of Creek lands has demonstrated beyond question that it is much more advantageous to dispose of the lands by sealed bids, after advertisement that the particular tracts are listed for sale; regulations on this subject are hereto appended, page 206, Exhibit C.

It is believed that a similar course should be taken in the sale of the coal and asphalt lands and deposits in the Choctaw and Chickasaw nations.

Additional legislation will be recommended with a view of securing a modification of said section, so that the lands may be sold under the direction of the Department under sealed bids, without entailing the large expense necessary for the sale of the lands by the Commission, as provided by said act.

Under existing law this Department has no supervisory control over the sale or leasing for agricultural purposes of lands in the Choctaw and Chickasaw Nations. Recommendation will be made to Congress for legislation conferring upon the Secretary of the Interior authority to supervise and control the sales and the leasing of lands in the Choctaw and Chickasaw Nations.

It is estimated that in the event no unforeseen obstacles are encountered the bulk of the work will have been completed by the close

of the year 1904, and at a cost of little more than 5 cents for each acre of land involved. It is believed that when the Commission's work is finished, affairs in Indian Territory will be well shaped and the time ripe for the establishment of a State or Territorial form of government.

The Commission refers to the great loss it sustained by the death, on February 5, 1903, of Hon. Henry L. Dawes, its honored chairman and the last in service of its original members, and transmits a copy of the resolutions passed by the Commission expressive of its just appreciation of this venerable and distinguished officer.

INSPECTOR FOR THE INDIAN TERRITORY.

Mr. J. George Wright, United States inspector, has been continued on detailed duty in the Indian Territory, with headquarters at Muskogee, under section 27 of the act of Congress approved June 28, 1898 (30 Stat. L., 495), known as the "Curtis Act;" sickness, however, necessitated his absence from the Territory from September, 1902, to June, 1903. The duties of his office therefore devolved for a short time upon the United States Indian agent, Union Agency, and the remainder of the time were under the supervision and direction of Mr. J. W. Zevely, special inspector of the Department.

The inspector has general supervision over matters within the jurisdiction of the Department except questions of citizenship and allotment and other matters committed to the Commission to the Five Civilized Tribes. He transmits the annual reports of the Indian agent at Union Agency, the superintendent of schools in Indian Territory, the several school supervisors, the supervising engineer of town sites, and the mining trustees of the Choctaw and Chickasaw nations, all of which officials are under the general direction of the inspector and report to the Department through him.

The reports submitted by the inspector state the conditions existing and the work accomplished during the year, as shown by the records of his office.

During the year the inspector has not been required to give particular attention to matters in the Seminole Nation.

The supplemental agreement with the Choctaw and Chickasaw nations, as ratified by the act of Congress approved July 1, 1902 (32 Stat. L., 641), and by the tribes on September 25, 1902, made radical changes in the conditions with respect to the leasing of mineral lands. Prior to that time the coal and asphalt leases were made by the mining trustees under direction of and approved by the Secretary of the Interior, with a royalty on coal of 8 cents per ton, mine run, and on asphalt of 10 cents per ton on crude and 60 cents per ton on the refined material.

The supplemental agreement referred to provided that such lands, including the deposits only where underlying town sites, not to exceed a

total of 500,000 acres, be segregated and sold at auction, under the direction of the President, and further provided that no lease of any coal or asphalt land should be made after the final ratification of such supplemental agreement, which was on September 25, 1902.

There were on September 25, 1902, the date of the final ratification of such supplemental agreement, 124 coal and asphalt leases in effect—114 coal and 10 asphalt. Fourteen new leases were made during the year.

The amount of royalty from coal is reported to be $259,686.58 and from asphalt $2,243.26, making a total of $261,929.84 during the year.

The following comparative statement shows the amount of coal mined and royalties collected each fiscal year in the Choctaw and Chickasaw nations:

Years.	Coal mined.	Royalties collected.
	Tons.	
July 1, 1898, to June 30, 1899	1,404,442	$110,145.25
July 1, 1899, to June 30, 1900	1,900,127	138,486.40
July 1, 1900, to June 30, 1901	2,398,156	199,663.55
July 1, 1901, to June 30, 1902	2,735,365	247,361.36
July 1, 1902, to June 30, 1903	3,187,035	261,929.84

The existing agreements with the Creek and Cherokee nations provide that allottees may lease allotted lands for mineral purposes, with the approval of the Secretary of the Interior, but no leases were approved during the fiscal year. There was collected from operators mining coal under permits for local consumption in the Creek Nation $1,505.29 and in the Cherokee Nation $2,813.66.

The town-site surveys commenced during previous years were practically completed during the past fiscal year, and would have been entirely completed had it not been necessary to furlough the force in March, 1903, owing to lack of funds.

A large number of towns having each a population of less than 200 persons was surveyed. The supplemental agreement with the Choctaw and Chickasaw nations provided that the limits of such towns should be defined not later than ninety days after the final ratification of said agreement, which was September 25, 1902. In these two nations there were about 320 small towns and post-offices, and it was necessary to visit each and make a report as to the conditions. Upon these reports the Department directed that 68 towns in the Chickasaw Nation and 32 in the Choctaw Nation, a total of 100, be surveyed and platted, which has been done, the conditions at other places not warranting the setting apart of a town site; such lands are to be allotted.

In the Cherokee Nation the conditions at 115 of these small towns and post-offices were examined, and upon the reports made the Department instructed that 21 be surveyed and platted, the remainder to be allotted. After the completion of the small town work, nearly all of

the larger towns having been surveyed, several surveying forces were relieved, and at the time of the furlough of the town-site employees on March 13, 1903, but three surveying parties were in the field.

The total number of regularly established town sites in the Territory is 297. The status of the work of surveying is shown to be: Choctaw Nation—surveyed, 84; to be surveyed, 5; Chickasaw Nation—surveyed, 127; to be surveyed, 3; Creek Nation—surveyed, 25; Cherokee Nation—surveyed, 44; to be surveyed, 9; total, 297.

Four town-site commissions were in the field making appraisement of town sites, one in each of the Choctaw, Chickasaw, Creek, and Cherokee nations up to March 13, 1903, when work was suspended. The Choctaw Commission at the close of the year had 40 towns to appraise, the Chickasaw Commission 89, the Cherokee Commission 47, many of which are small towns. The appraisement work in the Creek Nation was complete.

In addition to the appraisement work of the Choctaw and Chickasaw Commissions, they have also sold the vacant lots in practically all of the larger towns, and the inspector, by direction of the Department, since the furlough of the Creek Commission, has sold the vacant lots in that nation.

As payments for lots are made in full to the Indian agent, deeds to same are executed by the tribal executives of the respective nations and titles passed.

The tribal laws of the different nations prescribe certain permit taxes to be assessed against noncitizens residing and doing business in the Indian Territory. Since the passage of the Indian appropriation act of May 27, 1902, prohibiting the removal of any person who is in lawful possession of any lot or parcels of land in any town or city in the Indian Territory which has been designated as a town site, the tribal authorities have practically been unable to enforce the collection of revenues and permits assessed against noncitizens.

When an attempt was made to close stores in South McAlester, Choctaw Nation, the merchants applied to the judge of the United States court for the central district, who granted a temporary restraining order which was made perpetual on August 16, 1903, but the case has been appealed.

An effort was made by the owners of cattle in the Chickasaw Nation to enjoin the collection of the tribal cattle tax, but the applications were denied by the courts in the District of Columbia and also in the southern district of Indian Territory.

The amount of money collected by the Indian agent on account of live stock introduced into the Chickasaw Nation during the year was $30,511.65.

The total amount of revenue collected from all sources in the Creek Nation, not including payments on town lots, was $26,350.49, the largest item being on account of pasture and cattle revenues.

The total amount collected in the Cherokee Nation was $37,534.48, not including payments on town lots.

Attention is invited to the act approved January 21, 1903 (32 Stat. L., 774), amending the timber and stone act of June 6, 1900, and authorizing citizens of the Five Civilized Tribes to dispose of their timber from and after allotment by the Commission to the Five Civilized Tribes. The Assistant Attorney-General for the Interior Department rendered an opinion, which was approved by the Department, upon this act, holding that Seminole allottees may dispose of their timber at this time, as the allotments are complete in that nation, and that Cherokee, Choctaw, and Chickasaw citizens may sell and dispose of their timber after they have selected their allotments and received certificate of selection from the Commission to the Five Civilized Tribes.

The original Creek agreement authorizes Indian citizens to sell and dispose of their timber after they have selected their allotments.

A list of contracts entered into by the Department during the year is submitted, and the inspector refers to the action taken where pine timber was being cut in violation of law, which timber was seized by the Indian agent and in most instances, by direction of the Department, sold at public auction. In some cases, however, the claimants applied to the courts and after giving bond replevied the timber.

From the reports of the superintendent of schools and his several supervisors, it appears that the schools in the Choctaw, Creek, and Cherokee nations are being conducted satisfactorily under the joint control of the Government and a representative of the tribes. In the Chickasaw Nation the funds controlled by the Department are insufficient to pay the expenses of the schools, and therefore the Government has not taken full charge of the schools in this nation.

The superintendent states the finances in the Chickasaw Nation are in a deplorable condition.

There are four regular boarding schools or academies in the Choctaw Nation, in addition to one mission school or academy at Atoka. There are also 9 small boarding schools and 175 day schools, the total enrollment of all these Choctaw schools being 3,998, at a total cost of $119,561.

The Chickasaw Nation maintained 5 boarding schools, one of which is an orphan academy, and 15 day schools, with a total enrollment of 1,193 pupils, costing $110,750.

Ten boarding schools and 58 day schools have been maintained in the Creek Nation during the year, the total enrollment being 2,557, at a cost of $73,358.

In the Cherokee Nation there have been 4 boarding schools and 150 day schools, all having a total enrollment of 6,187 pupils, maintained at an expense of $110,818.

The total amount disbursed by the Indian agent, according to his

report, is $2,618,480.41, leaving an unexpended balance deposited of $85,157.87.

Attention is invited to the fact that the outstanding warrants of the Cherokee Nation, evidencing an indebtedness of $1,140,352.04, were paid by the Indian agent and retired during the year, and other warrant payments were made for the several tribes, as shown in the statement of disbursements.

The Indian agent also made a payment to Chickasaw citizens of $40 per capita, a total of $155,680.

Action is being taken looking to the payment of the so-called "loyal Creek claim," in accordance with the provisions of the Indian appropriation act of March 3, 1903.

In a number of cases towns in the Choctaw, Chickasaw, and Creek nations requested the Department to authorize the issuance of municipal bonds for public improvements under the provisions of the legislation applicable to the respective nations, and three applications were allowed.

The agreements with the Creek, Cherokee, Choctaw, and Chickasaw nations providing that Indian citizens be placed in possession of their allotments are quoted, and it is stated that the Indian agent, by direction of the Department, has taken steps to place allottees in unrestricted possession of their land when so requested.

Provision is made in the Cherokee and Creek nations for public roads. While the duty of enforcing the laws evidently devolves upon the Department, the machinery to carry out the work is lacking at this time, there being no funds available or adequate force for that purpose, but public notice has been issued looking to the establishment of these roads throughout the Creek and Cherokee nations.

Reference is made to the rules and regulations governing the leasing and sale of Creek allotments and the leasing of Cherokee allotments. In each nation citizens may lease their allotments for agricultural purposes for a term not longer than five years, and for grazing purposes for one year, without the approval of the Department, but longer-term leases and leases for mineral purposes may be made with the approval of the Secretary of the Interior, and not otherwise. Regulations to carry out this law were adopted near the close of the fiscal year.

In the matter of the sales of Creek lands, the regulations now require the same to be advertised and bids received therefor, and that no bid for less than the appraised value will be considered.

There being considerable controversy over the election of principal chief in the Choctaw Nation, in order to preserve the peace the Department requested the Secretary of War to dispatch troops to the scene, which was done, two companies of infantry, under the command of Major Starr, being sent from Fort Reno, Okla. Upon the report submitted by the Indian agent as to the result of the election, the Department recognized Green McCurtain as principal chief.

During the year Congress provided for the recording of deeds and other conveyances and instruments of writing in Indian Territory, making chapter 27 of Mansfield's Digest of the Statutes of Arkansas applicable so far as possible, and providing that the clerks and deputy clerks of the United States courts should be ex-officio recorders, and establishing 25 recording districts and places of record.

Reference is made to the laws authorizing Indians to lease their lands for certain periods without supervision or approval of the Department, and to the opinion of the Assistant Attorney-General, which was approved by the Department, to the effect that if the lease is one that the allottee was authorized to make, it can not be disregarded solely upon the ground that the rental provided is inadequate or that it was improvidently made or obtained by fraud or deception; that these are matters properly cognizable by the courts and redress must be sought there.

The inspector states there is no doubt that many Indians, especially full bloods, have been and are being imposed upon in the matter of leasing their lands; and if legislation were enacted making it an offense to enter into leases with minors, full bloods, or adult incompetents, without first submitting the same for the consideration and approval of some proper authority, it would have the desired effect and protect the interests of all concerned.

Provision should be made for public roads in the Choctaw and Chickasaw nations, and to pay the expenses of enforcing the road laws, determining the necessity therefor, and the payment of damages resulting from their establishment, etc.

An appropriation is also necessary to carry on the work of placing allottees in unrestricted possession of their land, and it is suggested that some legislation be enacted providing for Government supervision of Chickasaw schools.

Delaware Indians.—By authority of the Curtis Act, the Delaware Indians brought suit against the Cherokee Nation in the Court of Claims for the purpose of determining the rights of the former in the lands and funds of the Cherokee Nation. In view of the claim of the Delawares, the act required the Dawes Commission to segregate 157,600 acres from the lands of the Cherokees before making allotments in the Cherokee Nation, such segregation to be subject to the judicial determination of the rights of the parties.

This provision was incorporated in the subsequent act of July 1, 1902 (32 Stats., 716), but no action was taken by the Commission in the matter until the following December, due to the fact that it did not deem it necessary or advisable to make the segregation until prepared to enter upon the work of allotting the Cherokee lands.

In a report received April 20, 1903, the Dawes Commission advised the Department that on the previous December 17 the Commission

had ordered 157,600 acres, as described in a certain schedule submitted by representatives of the Delawares, to be segregated as required by the act referred to, but subsequently discovered that the schedule was erroneous in that some of the lands described therein were claimed by Cherokee Indians as their homes, upon which they had long resided, while certain other lands occupied by Delawares in the Cherokee Nation were not scheduled at all, although the law requires that the lands so occupied by Delawares should be included in the segregation.

The report adds that the Commission—

> Has been informally advised of cases of numerous other Delaware citizens whose improved lands are not included within the segregation, and the statement has been frequently made that the representatives of the Delawares, or their business committee, refused to schedule for segregation the lands of any Delaware citizen who failed to pay the pro rata share of the fee which said representatives or committee demanded. The Delawares whose property rights are thus unprotected are, for the most part, in moderate circumstances, and the improvements on the lands occupied by them represent, in most instances, the efforts of a lifetime.

Pending the consideration of this report, the Secretary of the Interior and the Dawes Commission were temporarily enjoined by the supreme court of the District of Columbia from changing said schedule in any manner, which injunction was dissolved October 6 last, the court holding that the segregation was incomplete in law because it had not been approved by the Secretary of the Interior.

The Secretary could not approve a segregation reported by the Commission itself to be so flagrantly a deviation from the requirements of the law, and therefore the Department, upon receiving official notice of the dissolution of the injunction, instructed the Dawes Commission to make and report a corrected schedule for segregation that would be free from such objections.

It is hoped and presumed that the Commission will be ready to report such a schedule at an early day, since delay in completing the segregation is embarrassing the work of allotting the Cherokee lands.

The action, above referred to as having been brought by the Delaware Indians against the Cherokee Nation, was decided adversely to the Delawares in the Court of Claims last February, and an appeal was taken to the Supreme Court of the United States, where it is now pending.

In August last, an attack was made in the public press by the representative in this city of the Indian Rights Association of Philadelphia, upon certain Presidential appointees confirmed by the Senate, and located in Indian Territory, affecting their integrity in the discharge of their public duties. No previous charges had been made against these gentlemen, nor an opportunity for reply given to them, nor to the Department, before such publication.

The attention of the president of the Indian Rights' Association was called to this matter, as will be seen by correspondence had with him as per appendix, page 262, Exhibit E.

Upon the demand of these officials, and in justice to them thus publicly accused, a thorough and impartial investigation is now being made under the direction of the Hon. Charles J. Bonaparte, of Baltimore, and Mr. C. R. Woodruff, of the firm of Neilson & Woodruff, of Philadelphia, whose duty it will also be to investigate the motives and methods of the accuser in order that full justice may be done in prosecuting the inquiry, the result of which will be made known in due course.

SULPHUR SPRINGS RESERVATION.

By the provisions of section 64 of the act of July 1, 1902 (32 Stat. L., 641), confirming the agreement with the Choctaw and Chickasaw tribes of Indians, there was ceded by said tribes to the United States a tract or tracts of land in the vicinity of the village of Sulphur in the Chickasaw Nation, not exceeding 640 acres, to be selected under the direction of the Secretary of the Interior within four months after the final ratification of said agreement (which was September 25, 1902), to embrace all of the natural springs in and about said village, and so much of Sulphur Creek, Rock Creek, Buckhorn Creek, and the lands adjacent to said natural springs and creeks as may be deemed necessary by the Secretary of the Interior for the proper utilization and control of said springs and the waters of said creeks, said lands to be selected so as to cause the least interference with the contemplated town site at that place consistent with the purposes for which said cession was made, and when selected and ceded the lands were to be held, owned, and controlled by the United States absolutely and without any restriction, save that no part thereof should be platted or disposed of for town-site purposes during the existence of the two tribal governments.

Said section fixes the price of said lands at $20 per acre and declares that the same should be deposited in the Treasury of the United States, to the credit of the two tribes, from the unappropriated public moneys of the United States, and that said payment shall be in full compensation for said lands.

It was further provided that all improvements upon the lands so selected, which were lawfully there at the time of the ratification of said agreement by Congress, July 1, 1902, shall be appraised under the direction of the Secretary of the Interior at the true value at the time of the selection of said lands, and shall be paid for by warrants drawn by the Secretary of the Interior upon the Treasurer of the United States; that until otherwise provided by law the Secretary of the Interior may, under rules prescribed for that purpose, regulate and control the use of the water of said springs and creeks and the temporary use and occupation of the lands so ceded; that no person shall occupy any portion of the lands so ceded or carry on any business thereon

except as provided by said rules, and until otherwise provided by Congress the laws of the United States relating to the introduction, possession, sale, and giving away of liquor or intoxicants within the Indian country, or Indian reservation, shall be applicable to the lands so ceded, and said lands shall remain within the jurisdiction of the United States court for the southern district of Indian Territory.

On November 19, 1902, there were selected and reserved for said reservation 629.33 acres. On the same date action was taken looking to the appraisements of the improvements on said segregated lands. No specific appropriation was made in said section for carrying out its provision except as to payment for the land, but on October 9, 1902, the Comptroller of the Treasury, upon the request of the Department, rendered an opinion holding that payment for improvements owned by persons at the date of the ratification of the act might be paid for out of the funds of the United States in the Treasury not otherwise provided for.

The improvements were appraised at $87,462.85. Some delay was occasioned on account of the failure of the owners to furnish evidence that the taxes on said improvements had been duly paid. These were subsequently furnished and there have been paid for the improvements $86,981.05. There remains, however, one additional claim amounting to $380, filed by the mayor of the town, which is awaiting further information in the premises.

On January 15, 1903, the Department requested the Secretary of the Treasury to place to the credit of said tribes $12,586.60, of which the Chickasaws were entitled to $3,146.65 and the Choctaws $9,439.95.

A controversy having arisen over the area which ought to be included in the town site of Sulphur, and information having been received tending to show that an additional tract of land ought to be added to the Sulphur Springs Reservation in order to protect it from contamination and secure the benefits intended by said section, in May, 1903, I visited the Indian Territory and personally made a careful inspection of the reservation of the land and improvements within the proposed town site of Sulphur. From the results of my own observations as well as from information which I deem reliable, I came to the conclusion that it was absolutely essential to exclude from the town site limits a certain tract of land adjoining Sulphur Springs Reservation, with a view of securing, if possible, legislative enactment for the purpose of enlarging the reservation covering the same. Accordingly, on October 20, 1903, I approved the exterior limits of the town site of Sulphur, excluding therefrom the tract above indicated for the benefit of Sulphur Springs Reservation, in order that proper action might be taken looking to the acquisition of title thereto and payment for improvements of lawful owners thereon.

Notice was duly given that parties making improvements upon said tract excluded from the town site would not acquire any rights by rea-

son of improvements subsequently made, and that said land was reserved from allotment to the members of said tribes.

In order that there may be no question as to the desirability of securing said additional tract for the Sulphur Springs Reservation, on November 12, 1903, I instructed the Director of the Geological Survey to cause a full and complete investigation to be made concerning the sanitary conditions of the springs and waters included in the Sulphur Springs Reservation, and to specially investigate and report whether the reservation of said reserved tract of land, or any part thereof, is necessary in order to preserve the springs and waters in the Sulphur Creek Reservation from pollution. Upon receipt of said report additional legislation will be recommended as the Department is advised may be necessary in the premises.

A special Indian inspector has been appointed and detailed to care for and protect the reservation, and to secure payment of the rentals under temporary leases with the occupants under rules prescribed by the Secretary.

AGREEMENTS WITH INDIANS.

As stated in my last annual report, the agreement of the Kansas or Kaw Indians among themselves for an equal division of their tribal lands was ratified by act of Congress approved July 1, 1902 (32 Stat. L., 636).

Under the provisions of section 1 of this agreement each member was entitled to select a homestead of 160 acres, the remainder of the lands to be divided among them by a committee appointed for that purpose. In accordance with this provision 247 Indians have selected homesteads. The schedules of homestead and additional allotments have both been approved. The homestead deeds have been executed and delivered, and the additional allotment deeds have been executed, but not yet delivered.

Under section 7 of the agreement the selection of a tract of land for town-site purposes was made, and the town of Washunga, named for the principal chief, was established. Five hundred and twenty-four lots have been sold, to the highest bidder in each case, and deeds for said lots have been executed, but not yet delivered.

Fort Berthold Reservation.—Mention was also made in my last annual report of an agreement which had been made with the Indians residing on the Fort Berthold Reservation. This agreement was submitted to Congress at its last session, but was not ratified.

Agreements made with the Crows and the Yankton Sioux in 1899 and with the Indians of the Devils Lake, Grand Ronde, Lower Brule, and Rosebud reservations in 1901 are still pending before Congress.

Turtle Mountain Indians.—An agreement with the Indians residing on the Turtle Mountain Reservation in North Dakota, concluded October 22, 1892, by the terms of which the said Indians relinquished

all title or claim to about nine million acres of land, was forwarded to Congress, with draft of a bill to ratify the same, on February 6, 1893.

This agreement is still pending before Congress, although the Department, believing that its terms and provisions would prove to be for the best interests of both the Indians and the Government, has repeatedly made favorable reports thereon and recommended its ratification.

PUYALLUP INDIAN LANDS.—On February 14, 1903, the Department decided that the provision in the act of March 3, 1893, forbidding the Puyallup Indians from alienating their allotments for the period of ten years from that date, would become inoperative on and after March 3, 1903, and that after that date the said Indians would have the power to "lease, encumber, grant, and alienate their lands without restriction, as any other person might do under the laws of the State of Washington." The Puyallup Indian Commission was instructed accordingly.

INDIANS IN CALIFORNIA.—The 80-acre tract known as the "Boyd claim," embraced in the old Camp Independence military reservation, has been subdivided and assigned to 16 heads of Indian families living in the vicinity. The question of allotting these tracts in severalty to the Indians, under section 4 of the general allotment act, is being considered by the Indian Office.

MISSION INDIANS ON WARNERS RANCH.—In accordance with a provision contained in the Indian appropriation act approved May 27, 1902, a tract of land located in San Diego County, Cal., comprising 3,353 acres, and known as the "Pala Ranch," was purchased, and certain public lands adjoining the same were withdrawn from settlement and entry, with a view to their addition to the purchased tract. To the lands so acquired, now designated as the "Pala Reservation," a majority of the Indians from "Warners Ranch," and those located at San Felipe and Puerta Chiquita were removed, under the supervision of United States Indian Inspector James E. Jenkins, and their immediate needs in the shape of subsistence, houses, farming implements, etc., are being provided for by the Department.

JOSEPH'S BAND OF NEZ PERCES.—The bill (S. 5311) introduced in the last Congress for the relief of Joseph's band was, by resolution of the Senate, referred to the Court of Claims, in pursuance of the provisions of the act of March 3, 1887. The court is authorized to report to the Senate what amount, or amounts, if any, are legally and equitably due Joseph's band of Nez Perce Indians under the various items of the bill.

LANDS FOR MISSIONARIES.—During the period covered by this report there was set apart for the use of religious societies for missionary and educational purposes on Indian reservations 591.37 acres of land.

RAILROADS ACROSS INDIAN LANDS.—During the year authority was granted for the survey and location of thirteen lines of railroad through

Indian lands other than those of Oklahoma and Indian Territory, under the provisions of the act of Congress approved March 2, 1899 (30 Stat. L., 990); and under the act of February 28, 1902 (32 Stat. L., 43), maps were filed by several companies covering rights of way and additional grounds in Oklahoma and Indian Territories. Full details as to both the above are given in the report of the Commissioner of Indian Affairs, and attention is invited to the views of that officer as the result of a careful observation of the operation of railroads under the last-named act.

EXHIBITION OF INDIANS.—Permission to engage Indians for exhibition purposes in shows, traveling theatrical parties, and the like has been consistently denied.

Several requests from State or county officials for Indians to be allowed to participate in fairs, etc., as an attraction, have also been denied; but one exception was made in the case of the annual carnival and festival at Denver, Colo., upon the application of the mayor, for certain Arapahoes and Shoshones to visit that city on that occasion.

LIQUOR TRAFFIC.—Inspectors, special agents, and school supervisors in the Indian service have been active during the year in their efforts to suppress the liquor traffic among the Indians, and in apprehending and prosecuting persons charged with violations of the law.

Numerous requests have been made upon the Department of Justice for investigation, by special agents of that Department, of cases of liquor selling to Indians, and a number of convictions have been secured; but owing to the difficulty of obtaining proper evidence against the offenders the general results have not been as good as was hoped for.

FISHERY RIGHTS OF THE YAKIMA INDIANS.—Recently a decision was rendered by the United States circuit court for the district of Washington, southern division, dismissing the bill filed July 11, 1895, to enjoin Winans Brothers from interfering with the fishery and other rights claimed by the Yakima Indians under their treaty.

The Attorney-General, on June 25, 1903, stated that, as then advised, he was inclined to think an appeal should be taken from the decision, but he asked to have the views of this Department as to the advisability of such action before issuing instructions to the United States attorney.

After consideration of the subject by the Department and the Commissioner of Indian Affairs, the Attorney-General was advised that, in view of the importance of the matter to the Indians, the Department desired that the case should be appealed to a higher court for a final decree which will govern the Department and the Indian Bureau, not only in this case hereafter, but in other cases of a similar nature that have already arisen or that may arise in the future. He was therefore asked to issue the proper instructions to the United States attorney.

THE LONE WOLF CASE.—Since my last annual report, the Supreme Court of the United States has dismissed the suit brought by Lone Wolf and others to enjoin the Secretary of the Interior from carrying into execution the act of Congress of June 6, 1900, providing for the opening of the Kiowa, Comanche, and Apache Indian Reservation in Oklahoma.

The excitement this litigation caused among the members of the three tribes concerned, and the factional spirit aroused by it, bore fruit last spring in a memorial to Congress purporting to come from a council of disaffected Indians, and supported by affidavits from other persons living in the opened reservation, making a number of charges against the Indian agent and the Indian inspector acting as the allotting agent, and suggesting that further particulars of wrongdoing by both officers could be obtained by a competent investigator on the spot. An appeal was, at the same time, made directly to the President, that he would send to Oklahoma some person familiar with Indian affairs, but not connected with the Government service, to inquire into and report independently upon all these matters. In pursuance of this request, Francis E. Leupp, of Washington, D. C., in whose experience, integrity, and ability in Indian matters, the Department has the greatest confidence, was designated to make the investigation. His report, based on a service of seven weeks in the field and the examination of every witness the accusers were prepare to produce, exonerates both the accused officers of the offences charged against them, stating each case as presented to him, and side by side with it his findings. He also, however, procured evidence to enable the United States grand jury to indict several persons for perjury and fraud.

Incidentally to a payment made under his supervision to the Kiowas, Comanches, and Apaches, Mr. Leupp explained to Lone Wolf's faction the force of the Supreme Court's decision dismissing their injunction suit. On the strength of their better understanding of the situation these Indians, who had up to that time refused to accept their share of the fund Congress had appropriated for the purchase of their surplus lands, bowed to the authority of the Government and made application for their money. This disposes of the whole matter, as far as the Department of the Interior is concerned.

PENSIONS.

The report of the Commissioner of Pensions shows that during the fiscal year ended June 30, 1903, the total number of pensioners on the roll was 1,043,933, and the number remaining on the roll at the close of the year was 996,545, a net loss of 2,901 from the previous year.

The gains to the rolls during the year were 40,086 new pensioners and 4,401 restorations and renewals, a total of 44,487; of this number 231 were pensioned by special acts of Congress. The losses to the rolls during the same time by death were 40,907 and from other

causes 6,481, a total of 47,388, a net loss for the year of 2,901. The number of deaths of soldier pensioners for the year was 29,123 and of this number 27,842 were volunteers of the civil war. The pension roll at the close of the year contained the names of 728,732 soldiers, 267,189 widows and dependents, and 624 army nurses.

The pensioners on the rolls June 30, 1903, are classified as follows, viz:

War, Revolutionary:	
Widows	2
Daughters	3
War of 1812:	
Survivors	1
Widows	1,115
Indian wars:	
Survivors	1,565
Widows	3,169
Mexican war:	
Survivors	5,964
Widows	7,910
Service after March 4, 1861.	
Civil war:	
General laws—	
Army invalids	254,969
Army widows	83,928
Navy invalids	4,142
Navy widows	2,221
Army nurses	624
Act of June 27, 1890—	
Army invalids	427,711
Army widows	155,249
Navy invalids	16,010
Navy widows	6,992
War with Spain:	
Army invalids	8,798
Army widows	3,488
Navy invalids	402
Navy widows	174
Regular establishment:	
Invalids	9,170
Widows	2,839
Total	996,545

The cases reported above under the head of "Regular establishment" embrace those in which the disability originated in service in the Army and Navy between the close of the civil war and the commencement of the war with Spain and since the close of the war with Spain and the insurrection in the Philippine Islands.

In prior reports the cases classified as "Regular establishment" were included under the head of "Civil war" cases; as a result of this year's classification the exact number of "Civil war" pensioners is shown for the first time.

The Commissioner estimates that the death rate among the pensioners for the present fiscal year will be about 45,000, and the losses to the pension roll from other causes will be about 6,000.

The largest number of pensioners on the roll during the year was on July 31, 1902, when there were 1,001,494 pensioners. The Commissioner expresses the opinion that the pension roll will not again cross the million line.

The Bureau adjudicated 251,982 claims of all classes during the year, 138,188 by allowance and 113,794 by rejection. Included in the number of allowances are 8,203 claims in which no benefit accrued to the claimants for the reason that they were then pensioned under another law at an equal or higher rate. Certificates are not issued in this class of cases unless claimants elect to take the pension in lieu of that which they now receive. Of the claims rejected 90,916 were denied on medical grounds, and 81,107 of them were applications for increase in which the examining surgeons found no increase of disability. Only 22,878 claims were rejected on legal grounds. In these cases it was found that either there was no legal title to pension or that the claimants were unable to furnish the evidence to establish their claims.

Many of these claims were filed by persons already in receipt of pensions under the act of 1890 and who were trying to secure an increased allowance under the general law. Upon their failure to establish such additional claim by competent evidence, a formal rejection was entered up, so that the case might be taken out of the pending files. A very small number of the rejections pertained to original claims, and many of the rejections were accompanied by an allowance of a pension to the same person under another law.

The number of allowances in which certificates actually issued during the year was 130,106. Of these, 40,136 were original claims; 4,401 were restorations and renewals; 69,258 were increases, reissues, additionals, and supplementals, and 16,311 were for accrued pension.

The number of claims pending July 1, 1902, was 339,436, and there were filed during the year 226,002 new applications of all kinds; at the close of the year only 304,809 claims were pending, of which 120,729 were original claims in which no allowance has ever been made. The actual number of claimants before the Bureau on June 30, 1903, was 255,048, representing 253,584 soldiers and 304,809 claims.

The total number of male pensioners was 728,732—277,481 on account of disability of service origin, 443,721 on account of disability whether due to service or not, and 7,530 old war survivors. The total number of female pensioners is 267,813—92,754 by reason of death of the soldier from causes due to the service, 162,241 on account of service of soldier, 12,194 on account of service of soldier in old wars prior to March 4, 1861, and 624 army nurses. A detailed statement of these classes is appended hereto. (Page 265, Exhibit F.)

The appropriation for the payment of pensions for the fiscal year

was $138,500,000; repayments to the appropriation made the amount available for payment of pensions $138,504,618.36. The disbursements for army and navy pensions during the year, including the amount disbursed by Treasury settlements, were $137,759,653.71, leaving an unexpended balance to be covered into the Treasury of $882,360.10. The expenditure for navy pensions was $3,837,400.76.

The amount expended during the year for salaries and other expenses of the Pension Bureau, and the cost of disbursements, fees of examining surgeons, etc., was $3,993,216.79, making the total cost of maintenance of system $141,752,870.50.

The disbursements for pensions by the United States from July 1, 1790, to June 30, 1865, were $96,445,444.23. Since 1865 the disbursements for pensions were $2,942,178,145.93, and for cost of maintenance and expenses $95,647,934.71, or a total of $3,037,826,080.64, making the entire cost of the maintenance of the pension system since the foundation of the Government $3,134,271,524.87.

Of the amount that has been expended for pensions since the foundation of the Government, $70,000,000 was on account of the war of the Revolution; $45,186,197.22 on account of service in the war of 1812; $6,234,414.55 on account of service in the Indian wars; $33,483,309.91 on account of service in the Mexican war; $5,479,268.31 on account of the war with Spain, and $2,878,240,400.17 on account of the war of the rebellion.

The cost of the pension system reached its maximum in 1893, when it amounted to $2.44 per capita of the entire population. It, however, has been growing less each year, and in 1903 the total cost of pensions amounted to only $1.75 per capita of population.

In 1893 the cost of the pension system per $1,000 of the aggregate wealth of the United States was $2.24, while in 1903 it had decreased to $1.32.

The Commissioner expresses the opinion that in ten years the pension system will cease to be noticed as a burden to the people of the United States.

The annual value of the pension roll, the amount required to pay the regular pension certificates, 996,545, outstanding at the close of the fiscal year, was $133,029,090. The average annual value of each pension was $133.49, an increase of $1.26 over that of the former year. The average annual value of general-law pensions has increased from $171.28 to $176.16; of pensions under the act of June 27, 1890, from $108.59 to $108.82, while the average annual value of Spanish-war pensions has decreased from $140.78 to $137.25. Over one-half of the pensions are $10 per month and under, and the average monthly value of all pensions is $11.12½.

In 106,870 cases allowed there were first payments averaging $88 each, amounting to $9,359,905. In 755 cases allowed the first payments averaged $1,357 each, amounting to $1,024,553.

The number of special acts granting pensions and increase of pensions passed during the second session of the Fifty-seventh Congress was 1,057, as against 1,114 passed at the first session, and caused an increase in the annual expenditures of $155,922. Since 1861 there have been granted by special acts of Congress 10,353 pensions and increase of pensions.

The number of attorneys on the roll June 30, 1903, was 21,441, and the amount paid as attorney fees during the year was $557,657; these fees are paid to attorneys direct by the United States upon the allowance of the pension claim, attorneys being prohibited by law from collecting fees from claimants.

Four thousand four hundred and thirteen examining surgeons are employed to make medical examinations of claimants for pension, and the amount appropriated for their payment during the year was $800,000, of which $726,371 had been expended during the first nine months of the fiscal year. A majority of the surgeons are organized into boards of three members each, while 189 designated specialists are distributed throughout the United States.

During the year 4 of the 18 pension agencies occupied leased quarters, at a total annual rental of $9,480. All these agencies are operated by an aggregate force of 431 employees, the cost of maintenance of such agencies for the fiscal year being $527,641.97. In 1903, there were 10,526 pensioners under guardianship. Owing to the large number of guardians and the labor and expense involved in scrutinizing and passing upon their accounts, it has been necessary to change the former rule requiring guardians to make detailed reports of the items of expenditure concerning the estates of their wards. Hereafter guardianship accounts will not be required to be filed in the Bureau, but, at the option of the Commissioner, guardians will be required to file a certificate from the judge of the court appointing the guardian showing that he is still duly qualified and acting and has given and maintained satisfactory bonds, submitted proper reports, and has complied with the laws of the State in which he resides.

During the year 192 indictments were found and 129 convictions secured on account of violations of the pension laws; there were 21 acquittals; 71 cases were dismissed; 9 civil suits were instituted, and $3,116 recovered. The report shows that of the persons convicted only 20 are believed to have any military service, and that in some of the cases the crimes charged were undoubtedly committed through ignorance.

During the year 226,002 new applications of all classes were filed in the Bureau, 251,982 cases were adjudicated, and 304,809 pending claims remained on hand at the close of the year.

Substantial progress has been made in bringing up the arrears of work in the Bureau, and in results obtained the year of 1903 exceeded any year since 1894. While the number of employees in 1903 was

nearly 300 less than in 1894, yet in 1903 the work done was 25 per cent above the average for the past ten years.

In discussing the condition of the force of his office the Commissmissioner states that there are 500 employees who are 60 years of age or over, and that the average age of all the employees is 53 years; the system now in force regarding the maintenance of the clerical force he regards as too unsatisfactory and expensive, and recommends that some law of retirement be devised and provision made to meet the conditions that exist.

I concur in the views of the Commissioner as to the necessity for providing for superannuated clerks and recommend that appropriate legislation be enacted by Congress for the retirement from duty of such aged employees.

The Commissioner reports that the estimated number of survivors of the war of the rebellion on June 30, 1903, was 900,000, excluding deserters. The names of 703,456 soldiers and sailors of that war are now on the pension rolls, and it is estimated that 200,000 survivors of the war have not yet been pensioned. The report designates the latter as the "unknown army," and expresses the opinion that it will lose in deaths and pensions during the present year about 22,000, and that if the pension laws remain unchanged, in five years more it will be reduced to about 60,000, and in ten years it will cease to be a factor.

A statement accompanies the report showing that 3,304,993 soldiers and sailors rendered service in the several wars in which this country has been engaged, and the average pension that has been paid on account of each enlistment is $919. The above number does not include a great number of civilians who rendered service in temporary local organizations against Indians, without making any claims for such services.

The Commissioner again recommends the passage of a law providing that any person convicted in a court of an infamous crime shall forfeit his pension or his right to one. I concur fully in the views of the Commissioner. The pension roll is a roll of honor, and its high standard should ever be maintained.

The Commissioner again calls attention to the many cases of widows who have married old soldiers after their names have been inscribed on the pension roll, and suggests the passage of a law prohibiting the granting of pensions to widows in such cases.

I entirely agree with the Commissioner.

The Commissioner recommends the amendment of the act of March 3, 1899, by striking out the word "resident" at the beginning of the first proviso, for the reason that as the proviso now stands a pensioner living abroad has a great advantage over a pensioner residing in this country.

The act of August 7, 1882, provides that marriages shall be proven in pension cases to be legal marriages according to the law of the

place where the parties resided at the time of marriage or at the time when the right of pension accrued.

The effect of this law has been to deny claimants in many instances the status of legal widowhood, although the equities appear to be in favor of such claimants. I desire to reiterate the recommendation contained in previous reports, that Congress so amend the act as to provide for the admission of evidence to prove marriages for pensionable purposes by a standard which will be uniform throughout the entire jurisdiction of the United States.

The present method of examining applicants for pension, the Commissioner again states, is uncertain, expensive, and unsatisfactory in its results, the personnel of the various medical boards being liable to outside control and political dictation. Those who are to be examined for disabilities should appear before persons possessed of the highest degree of medical knowledge and skill, as pathological sequences of many diseases and disabilities are so obscure and remote that they can only be detected by careful examination conducted by physicians of learning and experience, and frequently of those having special facilities for microscopical examination of excretions, etc. As a substitute for the existing system, he again suggests a division of the country into districts or circuits; the appointment under civil-service rules of medical experts, to be organized into boards to serve outside of the States of their domiciles, and to go from place to place within their respective circuits on fixed days, making examinations and taking testimony regarding the condition of the applicants for pension.

The Commissioner further suggests that he be granted authority to select 500 convenient and accessible places, at each of which he shall designate a local surgeon, who, in connection with the traveling board of that district, shall constitute the local board of United States examining surgeons, which shall examine all persons duly authorized by him. In cases of emergency the local surgeon may be designated to make the examination. The traveling surgeons shall be expected to devote all of their time to the service, and shall engage in no other gainful work or occupation while members of such boards; the Commissioner to have power to discharge at will any surgeon so appointed or reduce the number of such boards and to fill all vacancies caused by death, resignation, or discharge. The system as outlined by the Commissioner is in the interest of the betterment of the service and has my emphatic approval.

Under the act of March 3, 1901, amending section 4708, Revised Statutes, act of February 28, 1903, amending the act of March 3, 1901, section 4711, Revised Statutes, and the act of January 25, 1879, act of March 19, 1886, and act of August 5, 1892, attorneys are not permitted to charge claimants for services rendered therein. The Commissioner states that claimants should have the right to the services of attorneys at reasonable fees as well as for their own benefit as the saving of expense to the Government in performing work which the

attorneys might otherwise do, and recommends the fixation by law of a small fee for the services of attorneys under each of said acts. I concur in the Commissioner's views in this matter.

In previous annual reports the desirability of the enactment by Congress of a law providing for the payment of a specific fee to attorneys in claims under the act of March 3, 1899 (30 Stat. L., 1379), for division of pension, as well as in claims for accrued pension, was adverted to. In discussing the necessity for legislation of this character I stated:

The act of July 4, 1884 (23 Stat. L., 98), and the supplementary acts of March 19, 1886 (24 Stat. L., 5), June 27, 1890 (26 Stat. L., 182), March 3, 1891 (26 Stat. L., 1081), and August 5, 1892 (27 Stat. L., 348), contain provisions regulating the compensation of attorneys and agents for "services in prosecuting a claim for pension," and subject to certain specified restrictions, clothe the Commissioner of Pensions with a supervision over the allowance of such compensation and direct that, when "such pension * * * claim shall be allowed," such compensation shall be paid by the Commissioner of Pensions directly to the attorney or agent out of the pension money. The manifest purpose of this legislation is to protect pension claimants from unreasonable charges on the part of attorneys and agents engaged in securing the allowance of their claims.

This legislation is, however, limited to regulating compensation for "services in prosecuting a claim for pension," and does not extend to compensation for services rendered in other pension proceedings which do not in themselves constitute the prosecution of "a claim for pension." This has been sharply called to the attention of the Department in different ways. One of these is in connection with the administration of section 4766 of the Revised Statutes and the amendatory act of March 3, 1899 (30 Stat. L., 1379). This section, as amended, relates to the payment of pension money after the claim has been allowed, but has nothing to do with the allowance of the claim itself. It provides for enforcing a division or distribution between a pensioner and his wife or children, in certain enumerated contingencies, of the money accruing upon his pension.

The granting of an application by a wife or children for the division or distribution of such pension money is not the allowance of a pension; does not require the issuance of a pension certificate; will not increase the amount of moneys to be paid by the Government under the pension laws, and will not make the wife or children pensioners. The husband or father, as the case may be, will still be the pensioner, will still hold the pension certificate, and when the contingency which gives rise for the divided payment of the pension money ceases he will be entitled to receive all moneys thereafter accruing upon his pension.

These applications by wives and children are not, therefore, claims for pension within the meaning of the legislation regulating the compensation of attorneys and agents for services in prosecuting claims for pensions, but are only requests for the divided payment of the moneys accruing upon a pension, the claim for which has theretofore been successfully prosecuted to allowance by the husband or father. Such applications are nevertheless proceedings under the pension laws in which the beneficiaries should receive the same protection against unreasonable charges on the part of attorneys and agents as are otherwise accorded to pension claimants and pensioners. Indeed, the wives or children intended to be benefited by the act of March 3, 1899, are usually less able to protect themselves against such unreasonable charges than are most of the pension claimants who are accorded full protection by the act of July 4, 1884, and the acts supplementary thereto.

Another instance in which it has been shown that the existing legislation regulating the compensation of attorneys and agents is not broad enough occurs in the administration of section 4718 of the Revised Statutes, which provides that where the

pensioner or pension claimant dies the accrued pension money shall be paid to the widow or children, if there be such, and if not, shall be paid by way of reimbursement to "the person who bore the expenses of the last sickness and burial of the decedent in cases where he did not leave sufficient assets to meet such expenses." In the United States district court for the western district of Pennsylvania, in the case of United States *v.* Nicewonger (20 Fed. Rep., 438), it was held that an application for the payment of accrued pension money, as directed in this section, was not a claim for pension within the meaning of the acts regulating the compensation of attorneys and agents.

That Congress has the power to fix the fees of attorneys and agents for services in securing the allowance of a pension, or in procuring the payment, division, or distribution of any pension money, is fully established by the case of Frisbie *v.* United States (157 U. S., 160, 166), but in the absence of such legislation by Congress, or in those instances which are not covered by Congressional legislation, attorneys and agents may demand and receive from the claimants or applicants such compensation for their services as may be agreed upon. This is shown by the opinion of Mr. Justice Brewer in United States *v.* Kock (21 Feb. Rep., 873), where it is said:

"In the absence of a statute prohibiting it any man may contract for his services. He is not bound to render them, and, rendering them, he may charge the person seeking those services such fee as they may agree upon."

Under these circumstances I earnestly recommend that the existing legislation regulating the compensation of attorneys and agents for services in pension matters be so amended as to provide that no compensation whatever shall be paid to them, directly or indirectly, for any service in connection with any claim or proceeding under the pension laws, except such as may, within certain limits fixed by Congress, be allowed by the Commissioner of Pensions and paid from the pension money, as now provided with respect to "claims for pension."

Further experience in the administration of the pension laws during the past year has demonstrated the necessity for the enactment of the remedial legislation desired, and I accordingly renew my recommendation in the premises.

I desire to again call attention to the advisability of the early enactment of legislation providing for an authoritative judicial determination of the pension laws. This subject was fully discussed in my last annual report, in which it was stated:

In the light of further experience, I beg to earnestly repeat the recommendation in my report of last year (pp. 58–59) that legislation be had providing for the adjudication by the Court of Claims and the Supreme Court of the United States of a limited number of test pension claims involving difficult and important questions of law, thereby establishing judicial precedents for the guidance of the Commissioner of Pensions and Secretary of the Interior. A careful study of the subject leads to the conviction that the administration of the pension laws is essentially a matter for the executive department, and that it is impracticable to impose upon the judiciary any part of the investigation and disposition of those claims beyond the interpretation of the pension laws in such number of selected and test cases as will insure correct and uniform action by succeeding officers of the Pension Bureau. A bill (S. 4251) introduced by Senator Gallinger in the last Congress has received the approval of the Senate Committee on Pensions, and it is hoped it will be presented again at the next session and receive the favorable consideration of Congress. Exhibit G of the appendix to this report (p. 266) sets forth this bill, the report of the Senate committee thereon, and certain amendments to the bill proposed by the Grand Army of the Republic committee on pensions.

Desiring to act in harmony with those who, by reason of their army service, might

have suggestions and opinions to offer which are entitled to special consideration in connection with pension legislation, conferences were held in my office in January last with representatives of the Grand Army of the Republic, at which were present Messrs. Leo Rassieur, of Missouri, commander in chief; R. B. Brown, of Ohio, chairman of executive committee; John Palmer, of New York; J. W. Burst, of Illinois; Charles Clark Adams, of Massachusetts; O. H. Coulter, of Kansas, and A. G. Weissert, of Wisconsin, all members of the Grand Army of the Republic pension committee. The Assistant Secretary of the Interior, the Assistant Attorney-General of this Department, and the Commissioner of Pensions were also present to give the committee and myself any information or assistance which might be requested.

After discussing Senate bill 4251 and another one providing for a separate pension court, those present concurred in the opinion that some legislation along the line proposed in Senate bill 4251 was very desirable, and that the hope of securing it would be greatly enhanced if the Grand Army committee and the officers of this Department would come together upon some common ground and unitedly propose legislation believed by them to be fair alike to the Government and pension claimants. It was then arranged that the commander in chief of the Grand Army of the Republic, on behalf of the Grand Army committee, should go over Senate bill 4251 with the Assistant Secretary of the Interior and the Assistant Attorney-General and formulate, if possible, such amendments as would make the bill mutually acceptable to the Grand Army committee and this Department.

The bill was then gone over with the commander in chief, and such amendments as were suggested by him and insisted upon after discussion were assented to by this Department, and the bill, with these amendments incorporated therein (Exhibit G, p. 266 of Appendix), was laid before the Grand Army committee by the commander in chief. Subsequently, Mr. Weissert of the committee informed me that upon full consideration the committee assented to Senate bill 4251 as thus amended, and authorized me to say that it was acceptable to them, but that owing to a resolution adopted by the Grand Army of the Republic at its then last annual encampment, calling for the creation of a separate pension court, the committee was not at liberty to give the bill their formal approval.

It is my purpose to again bring this very important matter to the attention of Congress and to urge favorable consideration of a bill similar in character to that above mentioned, copy of which is hereto appended, page 266, Exhibit G.

The acts of Congress approved July 27, 1892 (27 Stat. L., 235), and August 18, 1894 (28 Stat. L., 403), provide for the transfer to the War Department of such papers on file in this Department as relate to the Revolutionary war and the war of 1812.

There are a large number of papers relating to the wars subsequent to that of 1812 and prior to the civil war now on file in this Department which in my judgment should be transferred to the War Department, where they can be indexed and arranged for use.

I recommend, therefore, that early legislation be enacted by Congress looking to the transfer of these valuable papers to the custody of the Secretary of War.

The disbursements, by years, on account of pensions and the expenses incident to the execution of the pension laws, together with the number on the pension rolls each year since July 1, 1865, are shown in the following table:

Statement showing disbursements for pensions, fees for examining surgeons, cost of disbursement, salaries, and other expenses of the Pension Bureau, and the number of pensioners on the rolls each year since July 1, 1865.

Fiscal year.	Disbursements for pensions.		Fees of examining surgeons.	Cost of disbursement, maintaining pension agencies.	Pension Bureau.		Number of pensioners on rolls.
	Army.	Navy.			Salaries.	Other expenses.	
1866	$15,158,598.64	$291,951.24		a $155,000.00	$237,165.00	$15,000.00	126,722
1867	20,552,948.47	231,841.22		a 155,000.00	308,361.49	27,615.86	155,474
1868	22,811,183.75	290,325.61		a 155,000.00	366,186.20	31,834.14	169,643
1869	28,168,323.34	344,923.93		a 155,000.00	366,007.31	43,519.50	187,963
1870	29,043,237.00	308,251.78		216,212.86	333,660.00	51,125.00	198,686
1871	28,081,542.41	437,250.21		431,720.03	372,378.97	58,980.00	207,495
1872	29,276,921.02	475,825.79		457,379.51	436,315.71	57,557.78	232,189
1873	26,502,528.96	479,534.93		456,323.99	456,021.26	90,855.39	238,411
1874	29,603,159.24	603,619.75		447,693.17	444,052.24	75,048.72	236,241
1875	28,727,104.76	543,300.00		444,074.79	464,821.21	73,799.35	234,821
1876	27,411,309.53	524,900.00		447,702.13	468,577.80	98,798.88	232,137
1877	27,659,461.72	523,360.00	$66,824.42	455,270.05	445,262.08	67,102.78	232,104
1878	26,251,725.91	534,283.53	234,968.26	313,194.37	443,096.56	41,240.90	223,998
1879	33,109,339.92	555,089.00	86,538.50	203,851.24	493,255.70	54,088.70	242,755
1880	55,901,670.42	787,558.66	75,547.00	221,926.76	582,517.84	55,035.68	250,802
1881	49,419,905.35	1,163,500.00	116,737.00	222,295.00	686,565.45	46,462.19	268,830
1882	53,328,192.05	984,980.00	232,595.87	234,541.37	868,113.92	130,981.85	285,697
1883	59,468,610.70	958,963.11	341,186.49	285,620.29	1,723,285.68	241,555.83	303,658
1884	56,945,115.25	967,272.22	262,066.32	303,430.61	1,936,161.65	333,522.42	322,756
1885	64,222,275.34	949,661.78	482,181.13	275,976.55	2,122,926.54	511,492.12	345,125
1886	63,034,642.90	1,056,500.00	492,714.76	294,724.14	1,948,285.80	509,291.91	365,783
1887	72,464,256.69	1,288,760.39	1,106,324.92	248,280.42	1,968,599.66	430,195.91	406,007
1888	77,712,789.27	1,237,712.40	845,143.61	263,109.87	1,986,027.55	420,776.24	452,557
1889	86,996,502.15	1,846,218.43	787,391.72	278,902.20	1,978,119.98	422,554.50	489,725
1890	103,808,850.39	2,285,000.00	895,677.62	292,697.35	1,957,725.43	380,281.78	537,944
1891	114,744,750.83	2,567,939.67	1,640,993.76	380,360.14	2,301,721.80	377,560.74	676,160
1892	135,914,611.76	3,479,535.35	1,725,597.47	500,122.02	2,494,122.87	178,823.44	876,068
1893	153,045,460.94	3,861,177.00	1,657,628.30	519,292.95	2,460,044.50	230,768.67	966,012
1894	136,495,965.61	3,490,760.56	672,678.50	517,130.37	2,403,522.75	370,344.69	969,544
1895	136,156,808.35	3,655,485.95	807,767.33	563,149.86	2,461,890.50	504,912.52	970,524
1896	134,632,175.88	3,588,528.58	672,587.47	565,027.85	2,258,959.35	494,800.94	970,678
1897	136,313,914.64	3,635,802.71	678,395.44	572,439.41	2,262,597.70	474,350.52	976,014
1898	140,924,348.71	3,727,531.09	894,249.08	536,629.84	2,254,181.40	429,031.14	993,714
1899	134,671,258.68	3,683,794.27	1,007,636.76	522,496.49	2,151,578.85	465,805.63	991,519
1900	134,700,597.24	3,761,533.41	747,497.80	522,812.16	2,135,542.55	435,854.23	993,529
1901	134,743,790.81	3,787,693.03	844,262.60	525,892.94	2,118,993.20	379,646.70	997,735
1902	133,655,245.75	3,849,022.24	814,470.82	526,413.67	2,114,153.75	376,340.72	999,446
1903	133,922,252.95	3,837,400.76	928,408.58	527,641.97	2,114,483.05	422,683.19	996,545
Total	2,875,581,357.33	66,596,788.60	19,118,071.53	14,194,939.37	52,925,288.30	9,409,640.51	

a Approximate.

In the disbursements for army pensions for the years 1871 to 1876, inclusive, is included the sum of $903,957.77 paid for artificial limbs.
The disbursement on account of army and navy pensions from July 1, 1790, to June 30, 1865, is $96,445,444.23.

PENSION APPEALS.

The report of the Assistant Secretary shows that on July 1, 1902, the commencement of the last fiscal year, there were pending 16,097 appeals and motions for reconsideration.

During the last fiscal year, which ended June 30, 1903, there were filed 9,417 appeals and motions, and there were finally disposed of 13,719 cases, leaving 11,795 appeals and motions still pending at the close of the year.

Although there were filed 740 appeals and motions in excess of the number filed during the preceding year, there was a reduction of 4,302 pending appeals.

During the year there were dismissed 2,343 appeals. This action was uniformly taken for the reason that the Commissioner of Pensions, when forwarding his report on the pending appeals, receded from his former adverse action and proposed to allow the contentions of the appellants upon the dismissal of the appeals. Such appeals were immediately dismissed upon receipt of the report of the Commissioner, regardless of the date of filing. This practice avoided the necessity for examining the merits of such claims, and permitted a more prompt readjudication and allowance.

Deducting the dismissals, final decisions were rendered in 11,376 cases, of which 914 were reversals, or a fraction over 8 per cent.

During the year over 900 claims on appeals have been returned to the Bureau of Pensions for further action and additional report. In most cases this was found necessary for the reason that, upon careful investigation, a special examination or another medical examination was deemed necessary in order to arrive at a just conclusion upon the issue presented, or because for various reasons the claim had been improperly adjudicated. The results of the time and labor expended upon this class of cases is not definitely indicated, except when the appeals are finally disposed of. A large number of appeals in such cases are still pending awaiting the additional report from the Bureau.

It has been the aim to thoroughly examine all legal and medical issues, to the end that there may be a just and final disposition of the same without the intervention of a motion for reconsideration. As a consequence, there were filed only 166 motions for reconsideration during the year.

The issues presented in the appeals are diverse in character, involving nearly all legal and medical questions arising under the numerous pension laws. From a careful observation it is apparent that at least 75 per cent of the number of appeals arise from the adverse action taken on medical grounds.

This demonstrates the necessity for a better method of securing

competent medical examination of pensioners than now exists. It can be effectuated by the establishment of pension examining boards under civil service rules, as recommended on page 58 of this report.

Volume XIII of departmental decisions in appealed pension and bounty-land claims has been completed during the last year, and is ready for distribution. It contains 579 pages, and embraces selected decisions of a legal and medical character, for future reference and guidance. The usefulness and importance of these publications are more and more apparent, from year to year, in establishing uniform and competent rulings governing the administration of the pension laws.

PATENT OFFICE.

The report of the Commissioner of Patents on the business of the Patent Office for the fiscal year ended June 30, 1903, shows that there were received during that year 49,199 applications for letters patent, 801 applications for designs, 156 applications for reissues, 1,767 caveats, 2,530 applications for trade-marks, 1,208 applications for labels, and 362 applications for prints. There were 29,892 patents granted, including reissues and designs, and 2,194 trade-marks, 910 labels, and 233 prints were registered. The number of patents that expired was 23,390. The number of allowed applications which were, by operation of law, forfeited for nonpayment of the final fees, was 4,760. The total receipts of the office were $1,591,251.04, the total expenditures were $1,423,094.40, and the surplus of receipts over expenditures, being the amount turned into the Treasury, was $168,156.64. The Commissioner's report shows that the business of the Patent Office is growing rapidly, the increase from 1899 to 1903 having been about 32 per cent, while the number of employees during the same period was increased only 8 per cent.

The Commissioner states that the increase in the business of the Office renders necessary the establishment of a new division, and asks that appropriation be made for the salary of a new chief of division and assistant, at the coming session of Congress, as well as for 10 additional clerks of class 1.

The Commissioner calls attention to the amendment of March 3, 1903, to sections 4887, 4892, 4896, and 4902 of the Revised Statutes. This amendment gives effect to the International Convention for the Protection of Industrial Property and extends the period within which an application for a patent could be filed in this country, after an application abroad, from seven to twelve months; it requires the authority of foreign officers administering oaths to applicants for patents to be proved by a certificate of a diplomatic or consular officer of the United States; it permits a foreign administrator of a deceased foreign inventor to file an application in this country upon the authority of such

foreign administrator being proved by a certificate of a diplomatic or consular officer of the United States; and it permits foreigners, as well as citizens of this country, to file caveats.

The Commissioner calls attention to his report for the fiscal year ended June 30, 1902, in which he pointed out the necessity for an increase in the sum provided for the purchase of books for the scientific library of the Patent Office, stating that $4,000 per annum could be expended judiciously for this purpose and for the transportation of publications of patents to foreign governments. He mentions the increase from $2,000 to $2,500 provided by the appropriation bill of February 25, 1903, for this purpose, and asks that the appropriation be increased to $4,000 in order that the library may be kept up to the office requirements.

The Commissioner states that the installation of new steel stacks for the scientific library was nearly completed on June 30, 1903.

The Commissioner suggests the necessity for more room, stating that the quality of the work would be improved and economy accomplished in its transaction if more space were allowed the Patent Office.

THE GEOLOGICAL SURVEY.

In accordance with custom, the Director of the Geological Survey submitted plans for the various branches of work, and the plans were approved by me at the beginning of the fiscal year. Their chief features appear in the following report of results achieved:

GEOLOGICAL BRANCH.—The organization of the geologic branch remained during the year as it was during the last half of the previous year, the director being assisted in the administrative control by the geologist in charge of geology, and in the planning and direction of the work in its scientific aspects by the geologists in charge of sections.

The increasing importance of the geologic and topographic work being carried on in Alaska, and the necessity for careful coordination in the planning and execution of the two classes of work, made it evident that control over both branches of investigation in Alaska should be placed in the hands of a single person. Accordingly a new administrative division was created called the division of Alaskan mineral resources. The geologist in charge of this division was placed in control of all geologic and topographic work carried on by the Survey in Alaska. This plan took effect July 1, 1903.

Within the year the Survey made a reconnaissance of Hawaii, with the object of securing data on which to base plans for future geologic and topographic work in that Territory.

During the year 59 geologic and 4 paleonotologic parties operated in the United States, excluding Alaska. The investigations carried on by these parties were directed along two general lines. Part of

the work resulted in the detailed mapping of various areas, for publication in the form of folios of the Geologic Atlas of the United States. This work, whose completion will result in a detailed geologic map of the entire United States, the geology being shown on large scale and accurate topographic maps, is progressing as rapidly as conditions permit.

While areal mapping of this character is often of great economic importance, a large and constantly increasing proportion of the work carried on by the Survey is directed to the practical and immediate advancement of the mining industry. Detailed examinations of the great mining districts of the country are carried on and reports prepared as rapidly as appropriations permit. The value placed upon such authoritative reports by mining men is shown by the urgent requests for surveys of mining districts, which are largely in excess of the present facilities of the Survey.

As the number of separate mining districts which have been investigated increases, it becomes possible to group the results of such investigations as pertain to any one mineral product, and to issue a report on the conditions of its occurrence throughout the United States. An excellent example of this type of exhaustive discussion of a mineral product was the report on the coal fields of the United States issued by the Survey within the year. This report was of particular value because of the concentration of popular interest on that subject at the time of publication. Similar general reports on the occurrence of other important mineral products are in preparation.

Prompt publication of the results of economic work by the Survey greatly increases the value of such work to those interested in the mining industries. Appreciating this fact, a summary of the economic investigations carried on by the Survey during 1902 was published early in the present calendar year, and such summaries of results will be published with similar promptness in future.

Alaskan geologic and topographic surveys were carried on throughout the fiscal year under direction of a committee composed of one geographer and one geologist in charge. At the end of the year this arrangement was changed, as noted in a preceding paragraph.

Under authority granted by Congress, making an appropriation of $60,000 for a continuation of the investigation of the mineral resources of Alaska, five parties were placed in the field during 1902. Of these, one carried on a reconnaisance survey and exploration from Cook Inlet to the Yukon, through the Alaskan Mountains and along the northwestern base of Mount McKinley. Two parties were engaged in topographic and geologic mapping in the Copper River Basin, including the Chistochina gold district, and parts of the Tanana Basin. A fourth party carried out a reconnaissance of the coal deposits along the Yukon River, while a fifth made a detailed survey of a part of the

Juneau mining district, in southeastern Alaska. Reports on the work accomplished by these parties were published during the latter part of the fiscal year.

The Alaskan investigations have met with the approval of the mining public, but unfortunately they can not keep pace with the rapid development of the mineral resources of the Territory. In the last ten years the value of product from quartz mines has nearly doubled while the gold placers have increased their product from about $200,000 to over $6,000,000. Mining and prospecting is being actively pushed in nearly all parts of the Territory, and there are ten times more demands made in the Geological Survey for mapping and investigations than can be met under the present appropriations. The more urgent work falls in three categories: First, the completion of the exploration and general mapping of the Territory. Only about one-fifth of the area of Alaska has been surveyed even in a preliminary way, and at the present rate of progress this task can not be completed under ten years. Meanwhile until river courses have been surveyed and mountain passes explored miners, prospectors, settlers, and traders are working blindly and are annually spending more than the cost of the surveys of the entire Territory.

The second need is for the reconnaissance of the important mining districts, which has only been in part completed. Even a hasty examination of a mining district often enables the geologist to point out some of the laws which govern the occurrence of the metalliferous deposits. Work of this character which has been done has been greatly appreciated by the Alaskan prospector.

The third demand is for detailed studies of the mining districts, which are especially desirable in regions of underground mining. This work, which is necessarily slow and expensive, has only this season been inaugurated in the Juneau region. It is very unfortunate that such investigations can not be pushed more rapidly, as there are a dozen or more other localities where there is an equal demand for this class of investigations.

In planning the work for the season of 1903 attempt was made to meet the more pressing demands, and with this in view seven parties were put in the field. Of these, two are in the Nome region, two in the Tanana-Yukon region, one is investigating the coal-bearing rocks of the Yukon, another the petroleum fields of the Pacific coastal belt, and the seventh the Juneau and adjacent mining districts.

Topographic branch.—The standard detailed topographic mapping was completed during the year for 36,606 square miles, distributed through 35 States and Territories, thus making, to April 30, 1903, a total of 930,181 square miles mapped. The area of the country being 3,021,880 square miles, the completed portion is about 31 per cent of the whole. In Alaska 100 square miles were carefully mapped in the

vicinity of Juneau, including a portion of Douglas Island, and in connection with all the Alaskan surveys about 20,080 square miles were mapped topographically. Forty-five miles of the boundary of the Bighorn Forest Reserve, in Wyoming, were surveyed and marked with special iron posts, completing that work, and 154 miles of the boundary of the Black Mesa Reserve and 12 miles of that of the Mount Graham Reserve, both in Arizona, were similarly surveyed and marked. In connection with all the topographic surveys 2 base lines were measured, primary azimuth observations were made at 4 triangulation stations, 395 triangulation stations were occupied or located, 1,487 miles of primary traverse were run, 29,160 miles of levels were run, and 1,826 permanent bench marks were established. In the office the drawing of 97 standard atlas sheets was completed.

Cooperative arrangements were made with twelve States, $22,000 being allotted by the State engineer and surveyor of New York, $15,000 by the State survey commission of Pennsylvania, $15,000 by the State geologist of West Virginia, $20,000 by the governor of Ohio, $2,500 by the State survey commission of Maine, $6,000 by the State geologist of Maryland, $5,000 by the State geologist of North Carolina, $1,000 by the State geologist of Alabama, $2,000 by the State geologist of Michigan, $1,400 by the Mississippi Experiment Station of Mississippi, and $1,000 by the Louisiana Experiment Station of Louisiana. Thus $90,000 was added by the States mentioned to the Federal appropriation for topographic work.

EXAMINATION AND SURVEY OF FOREST RESERVES AND ADJACENT REGIONS.—These examinations are of value with reference not only to the timber supply, but to the forest covering as a condition favorable to the conservation of water in the arid regions. During the year the examination of the San Francisco Mountain Reserve, in Arizona, which was commenced in the preceding season, was completed, and the Black Mesa Reserve, in Arizona, the Lincoln and Gila River reserves, in New Mexico, the Little Belt Mountain Reserve, in Montana, the Witchita Reserve, in Oklahoma, and a portion of the Uinta Reserve, in Utah, were examined. The reports on these reserves have been prepared or are in preparation. Altogether the area examined amounts to 7,500 square miles.

During the summer of 1902 the geographer in charge of this work made a personal examination of the lands of central Utah, with a view to adjusting the conflicting interests of the agriculturists and the sheep grazers, and an agreement was reached which appeared to be satisfactory to both parties.

HYDROGRAPHIC BRANCH.—The importance of the water supply of the country, both surface and underground, is steadily impressing itself on the minds of the people. Owing to developments in the transfer and application of power, the increasing need of growing

centers of population for adequate and unpolluted supplies, and the demands of arid regions for additional supplies for irrigation, our available water resources are yearly becoming more important as a factor in economic development. With this fully in view, the division of hydrography of the Geological Survey has made every effort to keep pace with the public needs and to furnish reliable data to meet the many demands made for information. With an appropriation of $200,000, the same as was made by Congress for the hydrographic work of the previous year, the division has concentrated on two lines of research—the study of the surface waters, and the study of the underground supply.

Under the former head numerous gaging stations have been maintained and others established in the eastern section of the country, particularly in Maine and in New York, where the water powers have become a most important feature in industrial development, and along the line of the Appalachian River systems in the Southern coast and Gulf States, where the possibilities for the development of water power for manufacturing and other purposes are but just beginning to be realized by capitalists and manufacturers. Here the rainfall is remarkably heavy and constant and the grades of the streams are unusually steep, while the districts through which many of the rivers flow are valuable agricultural lands or contain important mineral deposits. Thus is formed a combination which, with the abundant water power at hand ready to be developed, bespeaks for the South a future of increased commercial activity.

In the Central West the water supply is also of great value and interest, but for different reasons. Here the country is comparatively level and suffers much from floods at certain seasons of the year. The endeavor has been made to ascertain the habit of the streams most likely to threaten damage from overflow. Here also the population is relatively dense, many large towns and cities having grown up in the last quarter of a century, so that opportunities for pollution have greatly increased and are coming to be a menace not only to the health of the inhabitants of the region but also to many lines of industry which are obliged to use polluted waters in boilers or in processes of manufacture. In this way machinery is either quickly impaired and products are injured or great expense is incurred in neutralizing the effects of pollution. The streams in this section are in constant demand for municipal and domestic supply, and numerous gaging stations have been established to ascertain their capacity for this purpose.

While the water resources of the East are very important, those of the West are vital to the well-being of that section of the country, not only for power and municipal supply, but also and chiefly for the reclamation of arid lands through irrigation. In that section careful stream gaugings have been made of most of the important rivers which

can be used, to ascertain the amount of water available, as upon it directly depends the acreage susceptible of reclamation and future settlement. The efforts of the hydrographic branch in the West have been greatly stimulated by the prosecution of work under the terms of the national reclamation law of June 17, 1902, which was intrusted by me to this organization, and which is more fully treated in later paragraphs.

With the constantly increasing appropriation of the surface water for economic uses the underground supply has come to be regarded with great interest. Unlike the surface waters, the amounts of the undergound waters are not always apparent, and in spite of their importance information regarding them has not been as full as is desirable. From present knowledge on this subject it is evident that immense quantities of water which might be used to a greater extent are allowed to remain unutilized, contributing no benefit to the public weal and adding nothing to the public wealth. In order to obtain a better knowledge of the conditions governing the underground waters in different parts of the country, a special division of hydrogeology or hydrology has been created within the hydrographic branch divided into two sections, the eastern and the western, and placed in charge of competent hydrogeologic engineers, who are making a careful study of all available facts in regard to underground waters in the East as well as in the West. In this connection a number of valuable and interesting studies have been made of the rate and direction of flow of underground waters, and data are being collected which will contribute much to the general knowledge of the habits of this supply in various sections of the country.

Cooperation in hydrographic work has been entered into with a number of States in different parts of the country whose inhabitants have felt the necessity and the importance of fully understanding the hydrographic conditions within the borders of their Commonwealths. By means of this cooperation it has been possible to assist a number of large cities in the search for a pure and adequate water supply, a problem which is becoming more and more serious to many of the rapidly growing municipalities, and to stimulate the establishment of industrial purposes by securing accurate hydrographic data as a basis for their operations.

Reclamation service.—The act providing a reclamation fund for the construction of irrigation works for the reclamation of the arid and semiarid lands in the Western States was approved June 17, 1902, just prior to the beginning of the fiscal year. The results of many years of study, investigation, and surveys for the irrigation development of that region by the Geological Survey made it possible to organize the reclamation service without delay, and to begin at once upon projects presenting features favorable to early construction. By the

beginning of this fiscal year an organization had been effected under the supervision of the Director of the Geological Survey, and parties were at once placed in the field for the necessary investigations. During the winter of 1902–3 the results of these surveys were carefully examined by expert engineers, and in March, 1903, the Director presented five projects for my consideration.

In pursuance of his recommendations, on March 14, 1903, I instructed him to make such further investigations and surveys as were necessary to determine the features upon which the construction of these projects will depend. These were the Sweetwater project, in Wyoming; the Milk River project, in Montana; the Truckee River project, in Nevada; the Gunnison River project, in Colorado, and the Salt River project, in Arizona. Since that time the further work required has been diligently carried on. Such progress was made that in June, 1903, advertisements were issued for bids for the construction of diversion works in the Truckee River, Nevada, and the construction of a canal 30 miles in length to carry its waters to the proposed reservoir on the Carson River. Contracts were subsequently let for this work. The investigations in connection with the other projects are rapidly approaching the point where the Department will be prepared to enter into contracts for construction.

In the development of many of the projects of reclamation, a considerable proportion of the land to be irrigated is found to be in private ownership. A study of the existing conditions shows that very few of the available projects will involve public land only, and the problem of dealing with a number of private owners has received much consideration. In the Salt River Valley in Arizona, and in the Uncompahgre Valley in Colorado, the latter to be irrigated by means of the Gunnison River project, the owners of lands have organized into water users' associations. That of the Salt River was the first to be organized, and various questions in connection therewith were submitted for my consideration. Inasmuch as the law requires a definite approval of the form of such organization when the major portion of the payments required for the lands has been made—a contingency which would not arise for several years—it was not deemed advisable to formally approve the details of such organization at the present time. The association was advised, however, that the general form was satisfactory and that there appeared to be no reason why the articles as adopted could not be made to conform to such requirements as might be considered necessary when formal approval was required by the law.

A large number of withdrawals have been made in the various States and Territories subject to the operation of the act, and surveys are now being made to determine the feasibility of the projects proposed in connection with them. In order to withhold these lands from the

operation of the general land laws for as short a time as possible, in case the proposed irrigation works are not feasible, the examinations have been prosecuted as rapidly as the conditions would permit. The investigations have progressed sufficiently in several localities to determine the lands which would not be required in any event to carry out the proposed plans. In such cases considerable areas have been restored to public entry, as in the Bighorn project in Wyoming and the Grand River project in Colorado. In the case of the South Platte River project, in northeastern Colorado and western Nebraska, a careful study was made by the consulting engineers of the reclamation service of the results of the surveys and investigations, the water supply, the local conditions, and the engineering features. They reported that the project was not a feasible one for construction by the reclamation service. Accordingly, the entire area withdrawn was restored to public entry.

A detailed report as to the results of the examinations and surveys, giving estimates of cost of contemplated projects, the quantity and location of the lands which can be irrigated therefrom, and all facts relative to the practicability of each irrigation project will be submitted to Congress at the beginning of the next regular session, in pursuance of the provisions of section 2 of the reclamation act.

The following paragraphs give briefly the present condition of the work in each of the thirteen States and Territories. The work is being pushed forward as rapidly as possible consistent with economy of administration and efficient organization of the experienced men available.

In Arizona detailed surveys in connection with the proposed dam on the Salt River at the mouth of Tonto Creek have been continued and plans have been made and contracts let for power plant, cement mill, and other structures essential to the construction of the great dam. An organization of the water users has been effected and ample time has been afforded for the holders of arid land to indicate their wishes as regards obtaining a supply of water from the Government reservoir if constructed. The public lands in the Salt River Valley have been withdrawn under the terms of the law, to be reclaimed if there should be sufficient water for any considerable part of these. An alternative project, that near San Carlos, on the Gila River, has also been under consideration and additional facts have been obtained concerning the feasibility of this project. Other surveys and reconnaissances have been made in various localities, notably along the Colorado River.

In California the most notable work has been that in connection with the storage and utilization of the waters of the Colorado River in the southeastern part of the State. Any project here must probably be of considerable magnitude, the complete utilization of the river being

in some respects analogous to the achievements of the British engineers on the river Nile in Egypt. Examinations have also been made in the Sacramento and San Joaquin valleys, and facts have been obtained upon which to base a comparison of various projects.

In Colorado principal attention has been given to the tunnel which it is proposed to build to convey the waters of the Gunnison River to the Uncompahgre Valley in the vicinity of the towns of Montrose and Delta. An examination has also been made of the proposed high-line canal from the Grand River near Grand Junction, and of the feasibility of diverting and storing the flood water of the South Platte River in the vicinity of Sterling. A general reconnaissance has also been begun in the northwestern part of the State.

In Idaho, there are found to be several opportunities for reclaiming arid land with the waters of the Snake River and its tributaries, especially by utilizing as reservoirs the lakes at the headwaters of the Snake. A large tract of land has been reserved on the Snake River Desert in the vicinity of the town of Dubois, and another below American Falls near Minidoka; a third project is that for irrigating lands lying between the Boise and Payette rivers west of the city of Boise.

In Kansas a number of small projects have been looked into, but none of these has been considered as falling within the scope of the reclamation law. A very thorough study has been made of western Kansas and of the Great Plains in general, in order to ascertain the opportunities for obtaining deep or artesian water. A map showing the depth to the water-bearing strata and the probability of the water rising to the surface has been prepared and is in process of publication.

In Montana surveys have been made for canals along the Milk River and steps have been taken to secure the necessary reservoir sites. A general reconnaissance has also been begun of the central part of the State between the Missouri and Yellowstone rivers, and of the opportunities of diverting the Yellowstone in the eastern part of the State.

In Nebraska the principal opportunities for reclamation are bound up with the storage and complete utilization of the waters of the North Platte River. The reservoir sites are in the State of Wyoming. An examination has been made of these, also of the feasibility of covering arid land in the western part of Nebraska by canals heading in Wyoming.

In Nevada construction has been begun, as previously stated, on the Truckee canal, taking water from the river of this name, the head of the canal being in the canyon below Reno and above the town of Wadsworth. This canal will take the flood or excess waters of the Truckee River to a reservoir site on the lower part of the Carson

River, from which the water can be conducted out upon the desert lands lying to the east.

In New Mexico a number of surveys have been made upon the Pecos River and the Rio Grande. On the former stream the principal localities are above Roswell, at what is known as Urton Lake, and below Roswell on Hondo River. Maps are being prepared of reservoir sites on the Rio Grande above the Mesilla Valley.

North Dakota presents few problems of national importance. The principal water supply of the State is in the Missouri River, the flow of which is so gentle that canals can not be taken from the stream. The tributaries in this State are small or intermittent, or are bordered by valleys so narrow that any considerable development of irrigation does not seem practicable. Pumping may be resorted to, and for this purpose lignite for fuel may be obtained. The efficiency of this method of irrigation is being investigated.

Oklahoma is in many respects similar to North Dakota, in that large reclamation projects are impracticable or unnecessary. The greater part of the Territory is east of the one-hundredth meridian, and irrigation is not regarded by settlers as playing an important part in the agricultural development of the area. Beaver County, extending from the one hundredth to the one hundred and third meridian, is to a large extent arid; the water supply is deficient, and storage of flood waters is of doubtful practicability on any considerable scale.

In Oregon detailed surveys are being made in three important localities, one of these being in Harney County, near the central part of the State; another on the Malheur River, on the east; and the third on the Umatilla River, near the northern boundary. Each of these projects has certain advantages and difficulties, and a very careful examination must be made before their feasibility and their relative merits can be known.

In South Dakota the opportunities for reclamation are apparently around the Black Hills. A number of small streams issue from this area, and storage of flood waters is believed to be practicable. The principal opportunity for reclamation thus far discovered is that near Belle Fourche; other irrigable lands, mainly in private ownership, however, are noted east of Rapid City.

In Utah, the people, through a State commission, have asked that first attention be given to Utah Lake. This body of water receives the drainage from a considerable part of the mountain area of the center of the State and wastes by evaporation the greater portion of this water. The problem is largely the feasibility of preventing, by one means or another, this enormous waste, which has been estimated to be equivalent to 1,000 cubic feet per second during the irrigation season. Another project under examination is that of Bear Lake, which lies partly in Idaho and partly in Utah.

In Washington the great body of irrigable land is in the central part of the State, within what is known as the "Great Bend" of the Columbia. This land is below the level of the Spokane River, at the foot of Spokane Falls, and may be reached by water from this or other sources, if the cost is not prohibitory. The scheme is one of gigantic proportions, and its feasibility can not be definitely determined without careful surveys. Similar bodies of land north of the Columbia, and near the Okanogan River, can be reclaimed probably at less cost.

Wyoming contains mountain masses, from which come several of the larger rivers of the arid region. The altitude is high, but there are a number of opportunities for reclaiming desert land. The most notable of these is in the vicinity of Cody, in the Bighorn Basin. Surveys have been conducted in this area, and also to ascertain the possibility of storing water in Lake De Smet, on the east side of the Bighorn Mountains. On the North Platte River, also, extensive surveys are being made to ascertain the possibility of the storage of flood waters for use in eastern Wyoming and western Nebraska.

Each of the projects above mentioned involves large works and more or less complicated construction. As hydraulic works are among the most difficult to build, and as all questions of safety and stability must be settled with great care, it is necessary to carry on the preliminary examinations with unusual thoroughness. Instructions are given to ascertain all facts and to have every essential guarded in the most thorough manner possible. It is better to run the risk of criticism for slow progress than to rush into expensive construction, especially where safety is involved.

In connection with the work of the reclamation service, it is found that in some instances the necessary reservoirs and canals must be located upon the rights of way approved under the act of March 3, 1891. (26 Stat. L., 1095.) Under the provisions of this act, such rights are subject to forfeiture in cases of failure to construct within five years from date of location. In some cases reservoir sites required for the reclamation service have been approved more than five years, and no construction having been begun, the rights involved are subject to forfeiture. This forfeiture, however, can not be declared except by legislative or judicial act.

The procedure to obtain the declaration of such forfeiture through the courts is one requiring much time, and the delays involved would very materially interfere with the construction of the necessary reclamation works. Under present conditions, such delay can be avoided only by purchasing the rights of the parties to whom the grant has been made. The parties, however, frequently ask large sums for the mere franchise, and it may become necessary in some cases to acquire these rights either by condemnation or by forfeiture,

whichever will require the less time. In either event, the delay would be a serious obstacle to the proper development of the project. When smaller sums are asked, they would be paid in order to save time.

Such payment for rights subject to forfeiture, or the expense of obtaining a forfeiture thereof, would be unnecessary if the power to declare a forfeiture were vested in the Secretary of the Interior. The exercise of such power could work no injustice to those who were acting in good faith. The Department has in the past endeavored to obtain the passage by Congress of an act authorizing the Secretary of the Interior to declare such forfeiture when the statutory period had expired, after giving the grantees of the Government an opportunity to show cause why such action should not be taken. I desire to renew this recommendation for the enactment of such legislation, as it is a matter of considerable importance to the proper conduct of the operations of the reclamation service.

PHYSICAL AND CHEMICAL LABORATORIES.—In the physical laboratory much time was devoted to an investigation of the behavior of the rock-forming minerals, and analogous but somewhat simpler chemical compounds at high temperatures, and experiments upon the linear force exerted by growing crystals were continued. The geologist in charge was occupied largely with problems of geologic mechanics.

In the chemical laboratory 225 analyses, mostly of rocks and coals, were finished, and 443 qualitative determinations of minerals, etc., were made. Time was found, also, for work in special lines of research, such as the action of ammonium chloride on silicates, experiments upon methods for the analysis of cements, and researches into the secondary disposition of ores.

MINING AND MINERAL RESOURCES.—The duties of the division of mining and mineral resources include the collection of statistics of all kinds of useful minerals, the collection of the statistics of the precious metals having been added to its work in 1900. In addition to gathering the statistics of production and value of the useful minerals of the United States, the Survey has, at the request and under the authorization of the Director of the Census, distributed with its own inquiries the schedules of the Eleventh Census, and at this date the returns to the Census Office are practically complete. By this means it has been possible to make the statistical canvass of the Census Office and that of the Geological Survey agree in method. This work of the Eleventh Census consists principally of an inquiry into the labor, wages, and personnel of the mining industry; the statistics of the Geological Survey go into greater detail concerning the product and its value, in accordance with the plan pursued in previous years. This united work has also gone far toward establishing a complete roster of the present mines of the United States and an index to past mining operations.

In cooperation with the sections of economic geology, many economic regions have been investigated and the resultant reports have been published, either in the volume Mineral Resources of the United States or in the economic papers of the Survey.

The examination of the mineral resources of Cuba, undertaken the previous year at the expense of the War Department, has been completed and the results have been published in the final report of the military governor of Cuba.

The continued industrial progress of the United States is well shown by the fact that the total value of the mineral products of the country again exceeds $1,000,000,000. There has been but one exceptional gain over the previous year—that is in the output of cement. The growth of this industry has been phenomenal, and it is evident that in the future the use of cement for structural purposes will very greatly increase.

PUBLICATIONS.—The law of May 16, 1902, relating to the publications of the Geological Survey, to which I made reference in my last report, has given satisfaction. The following Survey publications were issued within the year: One annual report, 4 monographs, 10 professional papers, 23 bulletins, 20 water supply and irrigation papers, 1 volume on mineral resources, 12 geologic folios, 215 topographic maps and atlas sheets, and 4 miscellaneous publications. There were prepared for the printer 20,756 manuscript pages, 12,933 final pages of proof were read and corrected, and 9,445 pages were indexed.

EDUCATION.

The Commissioner of Education, after reviewing the status and functions of the bureaus as established by Congress, presents some interesting data and statistics of education in the United States.

The number of pupils in the common schools enrolled during the year was 15,925,887, the same being 20.28 per cent of the entire population, estimating the same at 78,544,816. The average daily attendance for 1902 was 10,999,273, the same being 69 per cent of the total number enrolled. This is the largest average attendance on the number enrolled ever reported in the United States. The average monthly wages of teachers is given as $49.05 per males and $39.77 for females, a slight increase over the previous year.

The above figures relate to the public schools only. In addition the private schools are tabulated at 1,103,901 for the elementary schools and 168,636 for academies and other secondary schools.

The total enrollment for the year, including public and private, elementary, secondary, and higher education, was 17,460,000 pupils, and to this there should be an addition made for evening schools, business schools, private kindergartens, Indian schools, State schools for

defectives, orphans, etc., 620,840, making a grand total of 18,080,840 in general and special schools.

In 1902, 580 cities, containing 8,000 inhabitants and upward, and 459 villages, containing 4,000 to 8,000 inhabitants, reported: The aggregate number of public-school children enrolled in these 580 cities was 4,174,812 pupils. Besides these there was an enrollment of 877,210 pupils in private and parochial schools; male teachers, 6,969; female teachers, 83,775. These cities alone expended $111,159,665. The entire population aggregated 25,293,143 people. It is interesting to note that the supervising officers in city schools number 5,025.

Students receiving secondary instruction in public high schools (the ninth to the thirteenth year's work of the course of study) numbered in all 734,760.

The total number of universities, colleges, and technological schools reporting in 1902 is 638, of which 131 admit women only; 134 universities and colleges admit only men to the undergraduate department, and 330 admit both men and women. Of the 43 schools of technology, 27 institutions report women among their undergraduates. The total number of students resident at these institutions was reported at 107,391. Of these, 66,325 men and 22,507 women were in universities and colleges for men and for both sexes; 5,549 were in colleges for women; 11,808 men and 1,202 women were in schools of technology. It is interesting to note that the total value of property possessed by these institutions for higher education amounts to $417,205,234; seven of these institutions have endowments of more than $5,000,000 each, and eight have from $2,000,000 to $5,000,000. The total amount of benefactions reported by the several institutions for higher education as having been received during the year is $17,039,967. The total benefactions of all kinds for educational purposes, as well as for philanthropic purposes, for the year was, of course, very much larger than this.

Professional students and graduates for 1902 were as follows: Theological, 148 schools, 7,343 students, 1,656 graduates; law, 102 schools, 13,912 students, 3,524 graduates; medical, 154 schools, 26,821 students, 5,069 graduates; dental, 56 schools, 8,420 students, 2,288 graduates; pharmaceutical, 59 schools, 4,427 students, 1,379 graduates; veterinary, 11 schools, 576 students, 141 graduates.

In 1902 there were 282 public and private normal schools reporting to the Bureau. There were 65,068 normal students in these institutions, 10,005 of whom graduated. Besides these, there were 29,065 normal students in universities and colleges and high schools. In 1902 the amount for current expenses of public normal schools had reached $3,228,090, and for buildings $906,301; 139 public normal schools report an aggregate of $20,628,432 as the value of their school property.

Of manual and industrial training schools, 163 reported to the Bureau in 1902. The number of pupils are given at 49,269 (29,183 boys and 20,086 girls) and the current expenses $1,118,406.

Commerce is taught in 177 universities and colleges, 51 public and private normal schools, 956 academies, 3,213 public high schools, and 520 business schools, a total of 240,697 students being engaged in preparing themselves for commercial work.

There are reports from institutions for the blind showing there were 39 schools, containing 4,315 pupils; 121 schools for the deaf, with 11,938 pupils; 20 State schools for the feeble-minded, showing 12,079 pupils in attendance. There were 92 reform schools enrolling 29,612 pupils. Of these 18,469 were learning useful trades.

In 1902 the common school enrollment in colored schools in the 16 former slave States and the District of Columbia numbered 1,587,309. The expenditure for the public schools of both races in these States and the District of Columbia amounted to $37,567,552.

EDUCATION IN ALASKA.—The Bureau has maintained the past year in Alaska, outside of incorporated towns, 33 public schools, with 39 teachers and an enrollment of 2,108 pupils.

Applications have been received for the establishment of schools at Ellamar, Seldovia, Kenai, Shakan, and Council City. In addition to these places it is recommended that schools be established at Anvik, Candle, Circle, Copper City, Deering, Homer, Point Hope, Belkofski, Karluk, Nulato, Rampart, Solomon, Sunrise, Ikogmut, Andreafski, Diomede, King Island, Ougavig, Nushagak, and Point Belcher. Up to the present time the school fund placed at the disposal of the commissioner of education has been so limited that it has been simply impossible to establish schools that should be provided for.

"An act making further provision for a civil government for Alaska, and for other purposes," approved June 6, 1900, section 460, chapter 44, part 2 (31 Stat. L., 330), provides a tax on business and trade in the form of a license. In section 203, chapter 21, part 5, of said act, provision is made whereby 50 per cent of said license money collected in incorporated towns shall be turned over to the treasury of said towns for school purposes.

By an amendment to the above section 203, approved March 3, 1901, it was provided that "Fifty per cent of all license moneys that may hereafter be paid for business carried on outside incorporated towns in the district of Alaska shall be set aside to be expended, within the discretion and under the direction of the Secretary of the Interior, for school purposes outside incorporated towns in said district."

In the application of this law the United States district courts of Alaska have taken "court expenses" from the license fund received from outside of incorporated towns.

In the requirements of a new country where courts are to be estab-

lished at heavy expense, witnesses and jurors brought from long distances and kept under salary for long times, and jails erected, "court expenses" will greatly decrease the fund that Congress intended for the schools, and it is possible that years may come in which the schools will be crippled by the large amount consumed by "court expenses."

The experience of the first year under this law has fully justified the fears of the friends of the Alaska schools.

Of the $114,375.34 of license fees collected from outside of incorporated towns in Alaska $90,299.25 was consumed in court expenses, leaving only $24,076.09 for schools.

The statistics by judicial divisions for the year ending June 30, 1902, are as follows:

Division I (Juneau and southeast Alaska):	
Court expenses	$21,734.34
For public schools	21,471.33
Division II (Nome and western Alaska):	
Court expenses	57,564.41
For public schools	Nothing.
Division III (Valdez and central Alaska):	
Court expenses	11,000.00
For public schools	2,604.71

To secure the intention of Congress—that 50 per cent of all license moneys collected outside of incorporated towns in Alaska should go for education in Alaska—the Fifty-seventh Congress, second session, amended the above provisions to read as follows:

Provided, That fifty per centum of all license moneys provided for by said act of Congress approved March third, eighteen hundred and ninety-nine, and any amendments made thereto, that may hereafter be paid for business carried on outside incorporated towns in the district of Alaska, shall be covered into the Treasury of the United States and set aside to be expended, so far as may be deemed necessary, by the Secretary of the Interior, within his discretion and under his direction, for school purposes outside incorporated towns in said district of Alaska.

This amendment was approved March 2, 1903. Under its provisions it is hoped that a larger sum will be secured for education in Alaska.

The amount received for education from one-half of license fees received from outside of incorporated towns in Alaska for the fiscal year ended June 30, 1903, was $19,742.62.

The total cost of the schools in Alaska outside of incorporated towns for the same period was $31,486.80, leaving a deficiency of $11,444.19, which was made up by a balance of $4,395.61 left to the credit of the school fund June 30, 1902, and the sum of $7,348.57 which has been collected since the passage of the above act.

The following places, being incorporated, have each a local system of education that is not under the control of the Bureau: Nome, Valdez, Eagle, Skagway, Juneau, Douglas, Treadwell, Wrangell, and Ketchikan.

REINDEER IN ALASKA. -The winter of 1902–3 was one of unusual severity in Alaska, but notwithstanding the unfavorable conditions the reindeer herd did surprisingly well, 1,695 fawns being born and living through the spring of 1903. At present there are 6,614 deer gathered in the nine central herds. Seventy-five parties have an ownership in these deer, of whom 54 are Eskimo. A few of the surplus male deer were during the winter sold by their Eskimo owners to the miners, who used them successfully for freighting and packing purposes. The deer are worked in harness like horses, and each draws a load of 700 pounds.

During the winter of 1903–4 the Post-Office Department has established a winter mail north of the Arctic Circle, between Kotzebue Sound and Point Barrow, a distance as traveled of about 750 miles. The mail on this route will be drawn by reindeer teams. This is the most northern mail route in the world.

Dr. Carl O. Lind has been appointed supervisor of the reindeer herds in Alaska, with headquarters at Unalakleet. Owing to the unwillingness of the Russian Government to allow the further exportation of reindeer from Siberia no deer have been brought over this season; however, 289 head of female deer, at an expense of $7,225, were purchased from the Eskimo herders, in order to enable them to procure food, clothing, and other supplies for their families.

The amount appropriated by Congress for the reindeer (1902–3) was $25,000. The expenditure is reported at $20,125.75.

AGRICULTURAL AND MECHANICAL COLLEGES.—By the act of Congress approved August 30, 1890 (26 Stat. L., 417), a continuing appropriation was made "for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts," established in accordance with the provisions of an act of Congress approved July 2, 1862. The said act of August 30, 1890, appropriated to each State and Territory for the year ending June 30, 1890, the sum of $15,000, and an annual increase of the amount thereafter for ten years by an additional sum of $1,000 over the preceding year, until the appropriation reached the sum of $25,000, which should then be the amount to be appropriated annually to each State and Territory. The act provided that these amounts should be paid out of the proceeds arising from the sales of public lands, but this limitation as to the source of the funds was removed by the acts of Congress approved May 17, 1900 (31 Stat. L., 179), June 17, 1902 (32 Stat. L., 388), and February 7, 1903 (32 Stat. L., 803), in each of which acts it is provided that if at any time the proceeds arising from the sales of public lands shall be insufficient to meet the payments authorized by the act of August 30, 1890, the deficiency shall be paid by the United States out of any money in the Treasury not otherwise appropriated.

The said act requires annual reports to be made to the Secretary of the Interior by the treasurers and presidents of the institutions receiving the benefits thereof and imposes upon the Department the duty of ascertaining whether the respective States and Territories are entitled to receive the annual installments of the fund. During the year the reports from the treasurers of the colleges receiving these funds were carefully examined, and the disbursements accounted for therein were found to have been in strict conformity with the law.

The reports of the presidents of these institutions for the year ending June 30, 1902, show a total attendance in all departments of 47,047 students, of which number 5,243 were enrolled in 16 institutions for colored students. Including the students in short courses, there were 21,190 students in the college classes of the department of agriculture and mechanic arts for white students. Of this number there were enrolled in the various courses as follows: Agriculture, 4,848; mechanical engineering, 4,633; civil engineering, 2,128; electrical engineering, 1,941; mining engineering, 923; chemical engineering, 382; textile engineering, 138; architecture, 178; household economy, 1,218; veterinary science, 641; dairying, 789, and other courses, 3,371.

The work of the institutions for colored students differs greatly from that of the other institutions. As a rule the work is chiefly in normal and industrial lines. The number of students enrolled in the industrial or trade courses was as follows: Farm work, 1,483; cooking, 708; sewing, 1,790; carpentry, 374; blacksmithing, 132; painting, 44; machine shop, 162; bricklaying, 93; shoemaking, 10; printing, 71; pattern making, 39.

The total income of the institutions, excluding the amount received for experiment stations and which can not be used for instruction purposes, was $9,167,059. Of this amount, $2,000,060 were received from Federal sources, and the several States and Territories contributed $4,253,257. The value of the property held by the institutions amounts to $69,660,303, of which amount $11,126,534 represent the proceeds of the sale of the lands and land scrip granted under the act of July 2, 1862.

The total appropriations to the several States and Territories under the act of August 30, 1890, from the passage of the act up to and including the fiscal year ending June 30, 1903, amount to $15,202,000.

A striking feature of the year was the number of new engineering courses established. Courses in mining engineering were established by the colleges of Kentucky, Maine, and Utah; a course in civil engineering by the University of Florida; a course in chemical engineering by the University of Missouri, and a course in electrical engineering by the Agricultural College of Utah. The University of Nebraska established four-year courses in forestry.

THE TWELFTH AND PRIOR CENSUSES.

The Director of the Census, S. N. D. North, succeeding W. R. Merriam, resigned, reports that the clerical force employed in the Census Office June 30, 1903, numbered 747 persons, and in addition that there were 689 special and field agents on the rolls of the Office at that date, most of whom were temporarily employed to collect the statistics of cotton. By act of Congress approved March 6, 1902 (32 Stat. L., 51), a permanent Census Office was established. The total expenditure of the Office for the fiscal year ended June 30, 1903, was $1,343,481.93.

There remains of the appropriation made by Congress for the Census up to and including June 30, 1903, an unexpended balance of $402,268.29, which is available for census purposes in addition to the appropriation for the fiscal year ending June 30, 1904.

Concerning the progress of work in the office, the Director states that the preparation of supplemental reports, rendered desirable by the interest attaching to certain portions of the data collected at the Twelfth Census, was impossible in the limited time allowed for the completion and publication of the reports relating to the four main subjects of census inquiry—population, agriculture, manufactures, and vital statistics. Compilation of these supplemental reports was therefore ordered and has been in progress. Detailed classifications of occupations and of the number of children born and children living at the period of census enumeration, June 1, 1900, are now nearly completed. The report on occupations is now about ready for publication.

In view of the fact that the statistics of manufactures of the Twelfth Census furnished no reliable information regarding the trend of wages in manufacturing industries in the decade 1890–1900, the Census Office is preparing an extended monograph on this subject which, it is believed, will be a publication of great economic value.

Three bulletins on cotton ginning were prepared and issued during the year. In the prosecution of this work 626 local special agents were employed in addition to a considerable office force. The cost of the field service amounted to $58,080. The Director considers this expenditure justified by the results, which included an accurate and final statement of the size of the crop of 1902 five months earlier than this important information has ever before been available. The field work was completed for the special report on electric light and power plants, and also for the special report on mines and quarries. For the latter the information was secured by the Census Office and the United States Geological Survey in cooperation.

Preliminary information was obtained for the special report upon wealth, debt, and taxation, and that inquiry was commenced. The

Director estimates that three years will be required for the completion and publication of the report on this important subject.

A report on irrigation, authorized by joint resolution 182 of the House of Representatives, and a special investigation for the purpose of shortening the time required for presenting results of the census of agriculture and reaching definite conclusions concerning the margin of error under existing methods, are also in preparation.

Congress provided that census reports concerning births and deaths in registration areas should be made annually, the information to be obtained from the records of such States and cities as maintained a satisfactory system of registration. Discretion was vested in the Director to determine what areas should be included. He decided that, as the registration of births is very defective, the reports should be limited for the present to mortality statistics.

A valuable handbook of international classification of the causes of death was prepared and published during the year. The assistance of the American Public Health Association, the American Medical Association, and of State and local health officials greatly aided the work of the Census Office. In cooperation with the first-mentioned association a pamphlet was issued concerning legislation providing for registration of deaths.

Pamphlets of importance were issued during the year on the following subjects: Legislative Requirements for Registration of Vital Statistics, Practical Registration Methods, Relation of Physicians to Mortality Statistics, and Medical Education in Vital Statistics.

In the collection of material for the annual mortality reports it has been difficult to secure full returns, as the records are often incomplete and the compensation allowed by law (2 cents per name) is insufficient to induce local officials to go back of book records to original certificates.

Mortality returns for the calendar year 1900 have been collected and compiled and considerable saving has been effected in time and money by the use of automatic tabulating machines for the preparation of aggregate tables heretofore prepared by hand.

Preliminary work has also been begun for the preparation of the special reports on deaf, dumb, and blind, insane and feeble minded, and crime, pauperism, and benevolence.

An abstract of the Twelfth Census was prepared and published toward the close of the calendar year.

The statistical atlas of the United States of the Twelfth Census has been compiled and is now ready for publication.

Since the taking of the Twelfth Census, June, 1900, there have been distributed 3,592,638 copies of bulletins, about 11,000 copies of each of the 10 volumes embracing the final reports of the Twelfth Census, and approximately 25,000 copies of the abstract.

PRIOR CENSUSES.

The records of the several censuses from 1790 to 1840, inclusive, were transferred to the custody of the Secretary of the Interior by the Secretary of State upon the organization of the Interior Department in 1849, and as the work of the several decennial censuses since 1840 up to and including 1890 was completed the original population schedules were turned over to the Secretary of the Interior.

The original population schedules from 1790 to 1820 are bound, the volumes numbering 193 in all. These volumes are of various sizes, occupy a floor space of about 25 square feet, and weigh approximately 2½ tons. The population schedules of the censuses from 1820 to 1880, inclusive, are also bound and number 4,431 volumes; in addition there are a number of records, books, and papers containing evidence of payments to census employees and other persons connected with the census work and the correspondence relative thereto, which make approximately 1,000 additional volumes.

The bound volumes are about 18 inches in length by 12 in breadth and 3 in thickness. They weigh approximately 56 tons, and if placed one upon the other would make a pile 1,400 feet high by 18 inches in breadth and 12 inches in width. The room in which they are stored contains about 2,944 square feet of floor space and is used exclusively for the accommodation of these records. Since the rendition of the last annual report all the population schedules of the Eleventh Census (1890) have been removed from the place where they were stored in the Union Building on G street, between Sixth and Seventh streets NW, in this city and transferred to the custody of the Director of the Census. They are now under his supervision, and are stored in the building on the northwest corner of First and B streets NW, leased by the Director for the general business of the Census Office.

By the act of February 14, 1903 (32 Stat. L., 825), creating a Department of Commerce and Labor, the Census Office was transferred from the Department of the Interior to the Department of Commerce and Labor. The formal transfer of the Census Office, under the provisions of section 13 of the act of February 14, 1903, supra, became effective July 1, 1903.

The population schedules from 1790 to 1880, inclusive, were not turned over to the Census Office, owing principally to the fact that the building leased for the use of that office, to which it was proposed to remove them, was not fireproof; they have accordingly been retained with the assent of the Secretary of the Department of Commerce and Labor in the Patent Office building, which is fireproof, until they can be suitably provided for elsewhere. These schedules are the originals, showing by name the individuals composing the population of the

several States and Territories during each census decade, and if mutilated or destroyed can never be duplicated.

The schedules of 1790 and 1800 have been paged, arranged, indexed, and repaired, and some progress has been made in the work on the schedules of 1810 and 1820. The haphazard manner in which these old schedules were originally arranged and bound, coupled with the fact that frequent reference to books and maps in the Congressional Library is necessary to obtain reliable information of the municipal subdivisions of the country in 1810 and 1820, precludes the possibility of rapid progress in the work.

The necessary care, attention, and repair required to prevent further deterioration of the valuable original manuscript records of the population of the country from 1790 to 1880, inclusive, have been given, and information compiled therefrom has been supplied to a large number of applicants throughout the United States for court and other purposes. Much interest is manifested by the people in these original documents and a large number have made personal examination of the schedules at the Department.

PUBLIC DOCUMENTS.

The report of the chief of the document division of the Department, submitted in compliance with the provisions of section 92 of the act approved January 12, 1895 (28 Stat. L., 623), shows that during the last fiscal year publications of the Government were received and distributed by the several offices and bureaus of the Department, as follows:

	Received.	Distributed.
Office of the Secretary	73,133	184,891
Patent Office	443,800	432,737
General Land Office	343,900	319,275
Pension Office	22,350	11,315
Office of Indian Affairs	51,604	43,453
Office of Commissioner of Railroads	800	680
Bureau of Education	58,763	53,888
Geological Survey	804,775	737,211
Census Office	906,062	955,323
Total	2,705,187	2,738,773

Four hundred and eighty copies each of volumes 184 to 188 of United States Reports were during the fiscal year received and distributed by the Department in compliance with the provisions of sections 681 and 683 of the Revised Statutes and of acts of February 12, 1889 (25 Stat. L., 661), and July 1, 1902 (32 Stat. L., 630). In addition, 33,899 volumes of United States Reports published by the Banks Law Pub-

lishing Company and 280 sets of Russell and Winslow's Syllabus-Digest of the same, together with 598 volumes of Reports and 172 sets of Digest, published by the Lawyers' Cooperative Publishing Company, have to date been purchased by the Department and distributed under the provisions of the act of July 1, 1902, supra.

No United States map prepared in the General Land Office later than that of 1900 has yet been published; of this edition 538 copies were distributed and 3,749 sold during the year. The copper-plate base of a new map of the United States corrected to 1902, to which reference was made in my last annual report, has been completed and accepted; transfers therefrom have been prepared in the Geological Survey and turned over to the contractors, Messrs. Guggenheimer, Weil & Co., of Baltimore, Md., to be placed on lithographic stones from which the map is to be reproduced. Satisfactory progress is now being made in the work, and it is expected that the completed map will be ready for delivery early in 1904. The entire edition of this map, under the law, will be delivered to the Senate and House of Representatives for distribution.

On June 29, 1903, a contract was entered into with R. F. Bartle & Co., of this city, for the bringing of the copper-plate base map of the United States above mentioned down to 1903, and this work is well under way. A contract was also entered into on the same date with the Friedenwald Company, of Baltimore, Md., for the printing and delivering of 27,000 copies, more or less, of the map of 1903, at the rate of 55 cents for each completed map as delivered and accepted.

Under the provisions of the act of April 28, 1902 (32 Stat. L., 158), making appropriation for the work, 7,200 copies of this map will be delivered to the Senate, 14,400 copies to the House of Representatives, and the residue to the Secretary of the Interior for distribution.

Of the publications of the Ninth, Tenth, and Eleventh Censuses, 116,773 copies have been delivered to the Census Office in compliance with the provisions of the act of January 12, 1903, by which the Secretary of the Interior is "directed to transfer to the Census Office all volumes of reports of the eleven decennial enumerations from 1790 to 1890 that may be in the possession of the Department of the Interior."

The sum of $6,310.89 was received from the sale of documents during the year by the office of the Secretary, and $10,648.70 by the United States Geological Survey.

OFFICE OF RAILROAD AFFAIRS.

The operations for the last fiscal year and the present conditions of the several railroad companies which have received subsidies in bonds and lands from the United States and which come under the provisions

of the act of June 19, 1878 (20 Stat. L., 169), are set forth in the report of the Commissioner of Railroads.

In his report statements are made showing the increase in net earnings, as also in the gross earnings and expenses of these roads during the last fiscal year. There has been a great increase in aggregate gross earnings; but the ratio of expenses to earnings has also greatly increased, so that the increase of net earnings has been much less than last year. The increase in the length of these lines during the year has been about 2,600 miles.

The Commissioner states that all the companies which were aided by the Government with bonds have settled their indebtedness in some manner, with the exception of the Central Branch Union Pacific, which remains in practically the same condition as on the date of his last report. The debt of the Union Pacific was settled in full November 1, 1897. After this settlement was made, however, it was found that the American Loan and Trust Company, of Boston, held in trust a sinking fund belonging to the Kansas Pacific Railway Company, for the debts of which the Union Pacific had become liable as the successor of that company. The Attorney-General of the United States accordingly entered suit for the possession of this fund, which suit was decided in his favor, and on September 14, 1903, the sum of $566,303.35 was turned into the United States Treasury by him on account of the subsidy debt of the Kansas Pacific, and later the sum of $3,276.94 on account of interest on same, an aggregate of $569,580.29 collected on account of the subsidy debt of the Kansas Pacific Railway Company.

The debt of the Central Pacific was funded, the company binding itself to the payment of twenty promissory notes, payable on or before the expiration of each successive six months from February 1, 1899, for ten years, each note bearing interest at the rate of 3 per cent per annum, payable semiannually. A condition was attached to the effect that if default be made in any payment of either principal or interest of any of said notes, or any part thereof, all of said notes then outstanding, principal and interest, shall immediately become due and payable, notwithstanding any other stipulation of the agreement of settlement.

The claims of the Government against the Sioux City and Pacific were purchased at public sale on June 20, 1901, by the Chicago and Northwestern Railway Company, and on August 28, 1901, that company purchased of the Sioux City and Pacific Railroad Company all its remaining interest in the railroad property and assumed all its debts and obligations of every kind. The operations of the Sioux City and Pacific are consequently embodied in the report of the Chicago and Northwestern.

The Central Branch Union Pacific Railroad Company was aided by the Government with bonds, but was sold under foreclosure proceedings and was succeeded by the Central Branch Railway Company,

incorporated July 6, 1899. The amount realized by the sale was sufficient to cover the first mortgage only, so that the United States, holder of the second mortgage, received nothing in reimbursement of its claim against the company, amounting to $3,750,125.13. In regard to this sale the Attorney-General held that—

> While the United States is named as a defendant in the bill of complaint to foreclose the mortgage on the Central Branch Union Pacific Railroad, no subpœna, citation, or other process was served upon it, nor did it appear as a party, and is therefore not barred by said decree of sale and might still redeem the property or cause its resale on account of its subsidy lien.

He holds that one-half of the compensation due from time to time for services rendered by this company to the Government should be withheld and applied upon the bonds issued by the United States in aid of its construction, notwithstanding the foreclosure and sale of the same. The indebtedness of this company to the Government on June 30, 1903, amounted to $3,724,105.76.

The Commissioner states that besides these four companies which were aided with bonds there are nineteen companies which have been aided by grants of land and which come within the provisions of the law requiring a monthly and an annual report to his Bureau. The general operations of all these companies are set forth in his report under their respective heads.

THE TERRITORIES.

Alaska.

The report of Governor John G. Brady, of the district of Alaska, enters into extensive detail as to the affairs of the district, covering the great problem of transportation facilities, the population, the laws, the industries, resources, and possibilities of the district.

The problem of transportation is represented as of greatest importance, and suggestion is made that Congress should encourage the construction of railroads through Alaska, not by further extension of land grants, but by the guaranty of a specified rate of interest upon the bonds of responsible corporations shown to be acting in good faith, and thus hasten the work of railroad construction.

The vast resources of the Yukon Valley and the region lying between it and the sea, now lying dormant, the capacity to sustain a large population, and the activity of Canada in the way of extension of transportation facilities are presented as convincing arguments in favor of governmental encouragement of the development of transportation.

The people of Eagle, Valdez, Rampart, and Nome, appeal for Congressional appropriation for the construction of wagon roads,

bridges, and trails into the permanent mining camps. The governor presents that the military trail from Fort Liscum, near Valdez, should be widened to a wagon trail. Supplies are increased in cost by as much as 25 cents per pound by transportation charges to Copper Center and beyond that point by as much as $1 a pound, and these charges could be enormously reduced by opening up the roads. This would also open up a large area of rich placer mining ground for profitable returns to thousands of men.

The governor submits that, by reason of the uncertain number of inhabitants, their migratory character, and the expense and taxation necessary to maintain a Territorial form of government, it is not desirable at this time that such should be organized.

Representation by a Congressional Delegate, to be appointed by the President or elected by the people, is earnestly favored. Admission directly into statehood without probation, in the future, when the population shall justify it, is represented as the hope of the people. A strong plea is made that citizenship should be conferred upon all of the native people of Alaska, as they are a self-supporting, manly, spirited, and progressive people, anxious to become land and mine owners, licensed pilots and engineers, artisans, and generally to enjoy the privileges of American citizenship.

The existing system of licenses for conducting business by individuals and corporations by which in incorporated towns all the fees go to the towns and the fees outside of the towns are divided between the school fund and a fund under control of the district courts is deprecated. It is suggested that the whole control of licenses and fees should be under the Internal Revenue Department of the Treasury.

The United States commissioners are now appointed by the judges, to whom appeals from the commissioners go, and it is suggested that they should be appointed by the President or the governor.

Salaries, instead of the present fee system of compensation to commissioners and marshals, are recommended in order to give equal protection to all and prevent "graft."

The cost of maintaining prisoners as at present by the marshals is shown to be excessive, and a system by contract or by a Government agent is recommended.

Congress in March, 1903, appropriated for the investigation of the agricultural resources of Alaska $15,000; for light-houses and fog signals in Alaskan waters, $200,000; for protection of the salmon fisheries, $7,000; for investigation of mineral resources, $60,000; for propagation of reindeer, $25,000; for a submarine cable, $485,000; for an exhibit at the St. Louis Exposition, $50,000, and for carrying out the provisions of the treaty of January 24, 1903, with Great Britain, $100,000.

All the lands in the district of Alaska are unsurveyed and this has prevented the taking up of homesteads; under the act of Congress approved March 3, 1903, however, a homesteader may select 320 acres of land and upon compliance with the terms of the statute secure a patent. The governor predicts that when Congress appropriates sufficient money to inaugurate and complete the land surveys in Alaska, that this law will result in the bringing of a large and valuable population of bona fide homeseekers into the district. The treaty between the United States and Russia relative to Alaska contains stipulations in favor of property held therein by private individuals in the district, and the act of May 17, 1884 (23 Stat., 24), and subsequent acts provided substantially that—

> Indians or other persons in said district shall not be disturbed in the possession of any lands actually in their use or occupation now claimed by them, but the terms under which such persons may acquire title to such lands is reserved for future legislation by Congress.

A number of persons are asserting claims under this statute and others through title and rights coming to them from the Russian Government, and as Congress has as yet enacted no legislation on the subject it is highly desirable that the matter receive early consideration at the hands of that body.

An act of March 2, 1903, amending the civil code of Alaska granting the right of self-government to incorporated towns with powers as to taxation, licenses, elections, police powers, and control of local institutions has proved very satisfactory.

By the census of 1900 the population was 63,592, of whom 45,872 were males and 17,720 females; the total white population was 30,507. The population represents only one person to every 10 square miles of area. The recent liberal homestead law should, when the great opportunities it presents to the fertile valleys of Alaska, with their rich soil and healthful climate, invite a rapidly increasing population from the overcrowded sections in the States of the Union.

Agricultural possibilities are great, as shown by the reports of the governor and the testimony of officials of the district as to the quality and yield of such crops and vegetables as are being cultivated.

It is predicted that stock raising will soon become an important industry and that choicest grades of dairy products will be supplied to other markets. Grasses grow from the southern boundary line away beyond the Arctic Circle. Cattle and sheep are being successfully herded on Kodiak Island. Poultry raising and egg production promise profitable returns on account of their high prices in the local settlements.

The timber resources of Alaska will be very great. The governor questions the policy of having made a forest reserve of the timber lands of southeastern Alaska, by proclamation of the President, on

August 20, 1902. This timber, he represents, is fully grown and going to waste in enormous quantities; that more lumber is shipped into Alaska than is taken from the land, and if Congress enacted a law providing for the collection of 25 cents per 1,000 feet for logs cut from lands in Alaska and brought to the mills, and some to be cut under a certain size, the Government would get millions of dollars for the timber and the younger growth of the forest would soon renew them.

Under existing law persons are entitled to take timber from the public lands of Alaska for their own individual use as actual settlers, residents, miners, prospectors, etc., but the only statute which authorized the disposal of timber is section 11 of the act of May 14, 1898. No timber, however, it is stated, has been disposed of under that act, it being urged by Alaskans that the time and expense necessarily involved in securing rights under it are too great to justify the attempt.

The greater part of the forests of Alaska are situated on the sides of steep and rugged mountains and in canyons and gorges, and the lack of sufficient soil has produced an uneven growth of timber, large and small trees being mixed indiscriminately. The cutting and marketing of logs require a great deal of labor, and heretofore it has been the custom to take valuable trees along the water front, working them into the water, towing them together, and booming them. The labor required to perform this work costs in the neighborhood of $6 per 1,000, and is not sufficiently remunerative to induce other than natives to engage therein. The timber situation in Alaska differs from that in almost any other locality, and seems to demand a simpler method than that prescribed by the above-mentioned statute.

The pack from the salmon fisheries, 2,400,000 cases, shows a shortage of 290,000 cases as compared with last year, but the prices are higher than ever, and the value of the product is placed at $12,480,000. The danger of depleting the streams, it is stated, is a grave one unless the Government, by establishing fish hatcheries, takes supervision of the salmon culture and stocking of the streams, and taxes the canneries for the expenses and support of this work. The catch of halibut has increased. These fish are caught in the open waters as well as in the channels, some of them weighing from 600 to 700 pounds. Shipments are made as far east as Boston in refrigerator cars. Cod-fishing grounds cover a larger area than those of halibut, but this industry as well as herring fishing is still only a beginning. Attu mackerel, a delicate and excellent food fish; the candle fish or ollachin, which produces a food oil said to be as valuable as cod-liver oil; black bass, red snapper, black cod, trout, eels, shrimp, crabs, and clams abound in the waters. There are no oysters in Alaskan waters.

The United States Army has posts at Forts Egbert, Gibbon, Davis,

St. Michael, Liscum, and Haines. The governor suggests that, as there will be no fighting to do, most valuable work could be done by the Army in the construction of roads and trails and making surveys. The work of the Signal Corps is most highly commended. It has established telegraphic lines from St. Michael to Sitka. The immense advantages expected to be derived from the marine cable about being completed between Alaska and Seattle are strongly presented by the governor. Naval protection to the increasing volume of commerce of Alaska is urged, and request made that from one to three of the smaller naval vessels should be assigned to duty in those waters.

The postal service in the district is gratifying and effective, but increase and extension will be constantly required.

The light-house service has been improved during the year by the erection of lights at Scotch Cape and Unimak Pass, Mary Island, and demand is made for an especially built tender and an inspector for the Alaskan light-house service.

There were 21,000 sealskins taken during the year, being 2,000 less than last year. The payment of a liberal bounty for the head of each "thresher," which is a destructive enemy of the seal, is recommended for the protection of the seal herds. The idea of branding the female seals is again urged as a measure of great importance for their protection, and it is shown that the branding does not at all injure the animal. The trade in land furs, such as foxes, bears, mink, wolverine, and beaver continues in many localities.

Game in Alaska is protected from wanton destruction and from slaughter for purposes of shipment by an act of Congress approved June 7, 1902, supplemented by definite regulations prescribed by the Department of Agriculture.

On June 30, 1903, there were 6,150 domestic reindeer in Alaska, including 1,600 fawns born in the spring of 1903. They are kept in ten principal herds, and are owned by 82 persons, the majority of whom are Eskimos and Laplanders. These animals are wonderfully adapted for valuable practical uses in the country, and the policy of fostering their propagation is said to be wise and farsighted.

Mining is the great subject of most absorbing interest in Alaska, and the urgent necessity is presented for a mining commissioner with a proper number of assistants to collect and keep record of data and information relative to mining enterprises for the public benefit. Great prosperity is reported from the mining camps. The gold-mining companies are exhibiting their prosperity and confidence by extending and enlarging plants and equipment, sinking new and deeper shafts, running new levels and purchasing new claims.

Much low-grade ore is being mined at an enticing profit. There is great activity in mining upon Douglas Island and back of Juneau, upon the mainland, and the southern half of Prince of Wales Island

is rich in mineral deposits. The mines at Silver Bow basin were never more prosperous, and great results are anticipated in the territory from Juneau to Berniers Bay. Nome, Council City, Fairbanks, Coldfoot, Rampart, Nizinia, and Fortymile are centers of activity in the placer mining industry and there is much rich and well-paying ore being worked. There are rich copper properties upon Prince of Wales Island and at Creppen River, from which a great product will soon come upon the market. Silver, lead, tin, gypsum, and marble are among the valuable minerals of Alaska, and there are great deposits of coal along the southern coast and in other parts of the district. Great interest is now being concentrated upon the discovery and location of oil fields all the way from Yakutat west through the Alaska Peninsula. Many expert oil men have visited the section and many wells are being sunk. The oil produced has a paraffin base and is regarded as a valuable product. The system of locating claims and power of attorney is being greatly abused, as evidenced by one instance in which two men have located 51,200 acres of land under the placer-mining act. The same system is practiced as to coal and oil, and there is justly a strong protest from miners and would-be bona fide locators, and an appeal is made for remedial legislation.

An interesting tabulated statement covering specific and detailed classification of merchandise, compiled by the Bureau of Statistics, showing the status of the commerce of Alaska, is included in the report of the governor. It shows as follows: Domestic merchandise shipped from the United States to Alaska from the customs districts of Oregon, Puget Sound, and San Francisco to the value of $9,266,504, of which $6,632,427 was carried in American steam vessels and $2,634,077 in American sailing vessels. The shipments of domestic merchandise from Alaska to the United States was of the value of $10,188,220. The shipment of gold and silver coin from the United States to Alaska amounted to $137,518, and the shipment of coin from Alaska to the United States amounted to $34,999. The shipments of ore from Alaska to the United States were: silver, $282; gold, $15,698,864.

The imports of merchandise into Alaska from foreign countries were of the value of $477,463 and the exports to foreign countries were $1,588,633.

Large numbers of tourists visit Alaska during the summer, especially in the southeastern part, and are rewarded by the wonderful scenery and by a store of personally gained information about this interesting country. The Government is gradually acquiring much property in the shape of public buildings, among which are a new building at Skagway, a court-house and jail now under construction at Juneau, and the public buildings at Sitka. The governor's building and the "barracks" building are much out of repair, and an appropriation of $15,000 is recommended for the repair of public buildings.

The governor states that Alaska needs an orphan asylum for the care of many children who may otherwise become criminals or outcasts—many mothers among the native and creole population give birth to successive children by as many different fathers from among the shifting classes of men who are but temporary sojourners, but leave an unprovided-for progeny to become a public charge. It also badly needs a hospital for the care of the sick. The ravages of consumption, especially among the Indians, could be greatly modified by hospital treatment and by disseminating instruction for the prevention of the disease, which the Indians regard as a manifestation of evil spirits and witchcraft.

In prior annual reports I have directed attention to the many cases of destitution and disease existing among the natives in Alaska, and have urged that relief be extended by Congress through the medium of adequate appropriations. The accompanying reports hereto appended, pp. 269–271, Exhibit H, of Frederick Funston, brigadier-general, U. S. Army, commanding Department of Columbia, embodying the results of a recent inspection of the army posts in Alaska, and that of J. W. Witten, special inspector of the General Land Office, designated by the Department to investigate affairs in Alaska during the past summer, set forth in detail the deplorable condition in many cases of Alaskan natives.

I again desire to call attention to this matter and to urge the early consideration thereof by Congress and the enactment of such legislation as will afford relief to these wards of the nation.

Under the contract with the State of Oregon there were sent to the Oregon State insane asylum during the year 20 insane patients. Five were discharged as cured and 3 died during the year.

The question as to the uncertainty of titles to real estate in Sitka is again referred to by the governor. The fact that conveyances guarantee only a possessory right instead of positive freehold title deters business men from making investments in and improvements of land holdings. Congressional action alone can furnish relief.

The principal incorporated towns, such as Ketchikan, Wrangell, Juneau, Douglas, Treadwell, Skagway, Eagle, Nome, and Valdez, have the management of their own schools, and they are represented as being well managed, appreciated by the people, and productive of excellent results.

Outside the incorporated towns there are 33 public schools, with 39 teachers, whose salaries amount to $19,022.66, and pupils enrolled to the number of 2,108. More schools are needed, especially at Chikan, Klinkwan, and Seldovia, but the school funds heretofore available from license fees are insufficient to extend this important work of education and additional Congressional action may be required.

The act of March 3, 1879 (20 Stat. L., 477), provides that —

Authority be, and is hereby, given to the Secretary of the Treasury to lease, at his discretion, for a period not exceeding five years, such unoccupied and unproductive property of the United States under his control for the leasing of which there is no authority under existing laws, and such lease shall be reported annually to Congress.

Under this statute the Secretary of the Treasury leased certain islands in southern and southwestern Alaska, to be used for the propagation of foxes. The act of May 14, 1898 (30 Stat., 409), extending the homestead and certain other public land laws to Alaska, in express terms excludes from the operation of this provision "the islands leased or occupied for the propagation of foxes." Subsequently to the passage of this act the Secretary of the Treasury and the Secretary of the Interior considered the question of supervisory authority over these islands, and the conclusion was reached that neither Department had jurisdiction over the leasing of said islands (17 L. D., 417). Thirty-three of the islands in Alaska are now occupied for fox-breeding purposes by persons who have made considerable investments in the business. It is stated that these persons claim that the action of the Government in leasing the islands induced them to embark in the business and make their investments, and that they are disposed to retain possession of the islands from other persons.

The situation and conditions regarding these islands are fully set forth in the appended report, page 279, Exhibit I, of J. W. Witten, special inspector of the General Land Office, designated by the Department to investigate affairs in Alaska during the year. If this industry is worthy of being fostered, it is suggested that Congress should enact some law authorizing the use of unoccupied and unproductive islands for this purpose, preferably placing the matter under the supervision of this Department.

Under the act of Congress appropriating $50,000 for an Alaskan exhibit at the St. Louis Exposition the governor was appointed by the Secretary of the Interior as executive commissioner. Plans are being perfected for a building and for presentation of the mineral, lumber, fish, fur, agricultural, fruit, vegetable and other products of Alaska, together with illustrations of its magnificent scenery, and the governor earnestly represents that the appropriation is insufficient and should be increased to $100,000, as originally recommended.

The official visit of a committee of United States Senators and the individual trips of several other Senators and Representatives through the district last summer was most gratifying and encouraging to the people and the public officials, as they believe that such visits will bring to the attention of Congress the existing conditions, the requirements, and the possibilities of development in Alaska.

In concluding his report the governor reiterates and emphasizes that

the dominant thought back of all plans to help Alaska is to encourage pioneers and home builders to seek prosperity among her many resources.

Arizona.

The report of the governor, Alexander O. Brodie, contains much interesting and valuable information covering the affairs of the Territory and its industries.

Arizona has an area of 113,000 square miles, covering more territory than the combined States of Connecticut, Delaware, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont, The acreage of land represented is 72,320,000. Its extreme breadth is 335 miles and its extreme length from north to south is 390 miles.

It is claimed that its valleys are as fertile as the valleys of the Nile; its elevated tablelands and plains are arid and sterile, except under irrigation; its mountains contain vast mineral storehouses yet undeveloped; its forests are the greatest in the United States; its climatic conditions are unexcelled for the sustenance and prolongation of human life and the propagation and stimulation of life in the vegetable and animal kingdoms. The public school system and the morals of the people are most excellent, and religious worship extends into almost every settlement and mining camp in the Territory.

The population, as given by the census of 1900, included 92,903 whites, 26,480 Indians, 1,848 negroes, and 247 Japanese. Of the white population 70,508 were native born. The population is now estimated at between 150,000 and 160,000, and it has steadily and rapidly increased during each decade since 1860, when as a county of the Territory of New Mexico it had a population of only 6,482. Arizona was organized as a Territory February 24, 1863.

The population in 1900 was more than twelve times as large as it was in 1870. The total taxable property of the Territory is $43,088,040.62, a net gain over the preceding year of $4,004,863.05. A liberal policy in maintaining public institutions and the school system keeps the tax rate somewhat high. This could be reduced materially if the numerous mining enterprises and live-stock industries could be made to contribute their proper share of taxes. The total valuation placed on railroad properties, covering 1,219 miles, is $6,385,029.03. Taxable lands and improvements, including land grants and railroad lands, amount to $9,148,792.87, while 1,832 mines and improvements escape with an assessment of only $3,986,602.54. The average valuation on lands cultivated and uncultivated was $5.09 per acre.

The financial credit of the Territory is shown by a recent sale of $25,000 of bonds at a premium of 9½ per cent. The total net debt of the Territory was represented by bonds amounting to $990,972.43 and floating debts (general warrants) $88,597.28, against which there

was available cash amounting to $14,976.14, leaving a net indebtedness of $1,064,593.57. There are 11 national banks having an aggregate capital stock of $602,500, surplus and undivided profits of $257,631.77, national-bank notes outstanding $292,600, and deposits of $3,730,784.12, and 22 Territorial banks having capital stock amounting to $773,310, surplus and undivided profits $301,195.21, and deposits $4,750,569.98. There are 6 building and loan associations, with aggregate liabilities amounting to $829,494.59.

At the close of the fiscal year there were confined in the Territorial prison at Yuma 284 prisoners, and the average net cost per diem per capita of each inmate was 48 cents. The total expense of the prison for the year was $55,469.53, and the receipts and earnings were $5,597.02.

The cost of maintenance of inmates of the insane asylum was 44 cents per capita per diem. There were 300 patients treated during the year, 32 deaths, 26 discharges, 5 escapes, and 11 paroled. The total expenses of the institution were $42,329.55, and the total earnings and receipts were $6,736.64. A number of improvements were made during the year, and the legislature of 1903 authorized an issue of bonds to make further extension of the capacity of the asylum.

The grounds surrounding the capitol building at Phoenix cover 10 acres, laid out in driveways and walks, and planted in trees, shrubbery, hedges, tropical plants, and flowers. The hedges and lawns are fresh and green and the flowers are in bloom all the year round. The maintenance of the grounds and of the capitol building cost for the year $5,800.81.

The new industrial school for juvenile offenders at Benson was completed in October, 1902, and it was the intention of the board of trustees to begin active operations of the school by October 1, 1903.

An issue of $30,000 of bonds was made for a Territorial exhibit at the St. Louis exposition. The sale of these bonds realized $32,100, which is to be expended by a board of commissioners in making exhibit of the great resources of the Territory.

A Territorial board of health and city and county boards have been established throughout Arizona, in pursuance of an act of the legislature entitled "An act to protect the public health."

There are two land districts, that of Prescott in the northern portion of the Territory, covering 68,000 square miles, and that of Tucson in the southern portion, embracing 45,318 square miles. Of these lands, 5,815,927 acres are surveyed and 18,838,794 acres unsurveyed in the Prescott district, and 5,874,991 acres surveyed and 16,463,989 acres unsurveyed in the Tucson district.

The private land claims in Arizona comprise 6 unconfirmed claims, 8 confirmed claims, 4 rejected claims, and 2 approved by the Secretary of the Interior. There are only two patented land grants in the Ter-

ritory. There were surveyed during the year 314,922.76 acres of land, 25 townships, and 3 private land claims.

The great forests of the Territory have been taken in charge by the General Government, set aside in reservations, and are protected from depredation by competent rangers. In the forests not included in the reserves the lumbering industry is carried on by milling and lumber companies. Flagstaff and Williams contain the principal lumber mills, although there are a number of small mills in some of the smaller pine forests of southern Arizona.

The internal-revenue collections made in the Territory for the year amounted to $45,052.56. The value of domestic exports through the customs port of Nogales was $4,526,491; value of foreign exports, $7,897; imports free of duty, $8,078,078, and amount of duty collected, $123,805.70.

Water storage and irrigation are among the greatest problems for the development of the great area of arid lands of the Territory, and extensive information is given by the governor upon the authority of most reliable contributors, as to the assurance of success in agriculture following irrigation of these lands. Upon this subject the following is reproduced from the report of the governor:

> Situated in the arid belt, success in agricultural pursuits in Arizona depends entirely upon the inauguration of systems of irrigation, and which, when properly established with an ample water supply, bring to the farmer and fruit grower within this arid region many-fold greater returns than come to those engaged in the same occupation elsewhere, on account of the number and variety of the products of the soil, the sureness of return for labor expended, and the great quantity produced during the various harvests of the year.
>
> The waters of the different streams in this Territory are shown by analyses to contain fertilizing elements of far greater value per acre-foot of water on an average than is usually placed by eastern farmers as a fertilizer on 1 acre of ground. This proves a boon to the agriculturist of this Territory in keeping his land up to its proper condition without extra labor to himself. The greater the flood the more valuable is the water as a fertilizing agent and the lesser the quantity of deleterious matter carried.
>
> All of the available surface-water supply of the various streams in the Territory having been appropriated during the past several years and carried upon the land for purposes of irrigation, the question now arises as to the most feasible method of securing for use, at such times as it shall be most needed, the flood water annually carried by the streams to the sea, as well as the utilization of the subsurface water wherever found.
>
> Under the general fostering care of the United States Government, as evinced by the passage of the Hansbrough-Newlands measure, "An act appropriating the receipts from the sale and disposal of public lands in certain States and Territories to the construction of irrigation works for the reclamation of arid lands," the provisions of which act are to be carried into effect under the supervision of the honorable Secretary of the Interior, a great portion of the vast area of arid land in this Territory, amounting to almost 10,000,000 acres, will eventually be brought under a state of cultivation and, in the words of the honorable Secretary, the residents of the Territory of to-day will hardly know their own country should they live to see it twenty-five years from now if the present plans are allowed to be carried out.

Arizona is blessed in having streams with drainage areas of great extent on which large systems of water storage can be easily and successfully inaugurated, and to such an extent that every drop of rainfall finding its way to the course of the streams will be impounded and held for use during the dry season. Notably among these streams are to be mentioned the Gila, the Salt, the San Pedro, the Santa Cruz, the Hassaympa, the Verde, and the Santa Maria, all of which have many tributaries. On all of these streams and their tributaries are to be found valuable reservoir sites, available and to be used as the great system of flood-water storage resultant upon the desire of the General Government to carry into effect the provisions of the law that when fully developed will make homes for coming generations.

Arizona is also peculiarly blessed in having for its western boundary the Colorado River, the waters of which will eventually be used to irrigate not only all of the bottom land along that stream and on both sides, but also all of the higher mesa land available and within easy distance. The works necessary to meet the conditions found on this stream, being stupendous in their character, can only be undertaken successfully by the General Government with its unlimited resources.

In the care of the watersheds of the streams from which the water supply is to come to feed for centuries the irrigation systems of the Territory much thought must be expended and supervision exercised. With few exceptions these watersheds are occupied by adverse interests, such as lumbering and grazing, and have been denuded to an extent that greatly injures their value as a source of water supply.

Lumbering and grazing are important; irrigation is indispensable. Limited irrigation has transformed natural deserts into parks; unlimited lumbering and grazing have transformed natural parks into deserts. The latter interests should not be suppressed; the former must be fully protected.

The watershed of each system is of paramount value as the source of the water supply of that system, and its preservation for that purpose is of the utmost importance. A barren, hoof-beaten shed dissipates the rainfall, while a well-covered, untrodden shed conserves the rainfall. To protect the shed is to perpetuate the system and preserve homes for the people, while to despoil the shed is to deteriorate the system and destroy the homes.

The control of irrigation systems is a manifest necessity, as without control there can be no protection, and damage and confusion are unavoidable. This control should include the entire area of the watershed, as well as the irrigation works proper.

It is fully understood by the people of Arizona that one of the first irrigation projects to be inaugurated under the provisions of the Hansbrough-Newlands act will be in the Territory by the construction of what is known as the dam to create the Tonto Reservoir, some 70 miles above Phoenix, on Salt River.

This reservoir, when created by the construction of the dam, will cover 14,000 acres. The height of the dam will be 245 feet, and the depth of the water stored at the dam will be 190 feet. The dam will be 165 feet thick at the bottom and 16 feet thick at the top. In length it will be 200 feet at the base and 653 feet at the top. When completed, the Salt River Dam will be the highest in the world, and the storage capacity of the reservoir will be greater than almost any three artificial reservoirs in the world, being about 1,300,000 acre-feet of water, or sufficient to cover 1,300,000 acres of land 1 foot in depth.

It is felt and understood that the creation of this artificial reservoir by the construction of this immense dam is but the forerunner of further systems of water storage in aid of irrigation in Arizona, and that eventually upon all streams in the Territory, where proper sites can be found, systems of irrigation works will be constructed, and that where flood-water supply is found sufficient to guarantee, more than one reservoir will be created upon a single stream, in order that control of all surplus water may be had. That this is the intention of the Government all fully believe.

In the Salt River Valley there are now cultivated 125,000 acres of irrigated land. The construction of the Tonto reservoir, it is represented, would increase this acreage to 250,000 acres. In Gila Valley, where the crops are principally wheat, barley, and alfalfa, there are 50,000 acres irrigated and 100,000 acres of barren land which would be rich and productive if subjected to irrigation.

The Colorado River Valley near Yuma has been designated as the Valley of the American Nile, but there is only a small proportion of the land as yet under irrigation. Tropical fruits, cereals, and grasses grow abundantly upon the cultivated lands. There are 10,000 acres of irrigated land under cultivation in Santa Cruz Valley. In a number of the smaller valleys, where water can be obtained for irrigation, fruits, vegetables, small grains, and alfalfa are abundantly cultivated.

Agriculture and horticulture are becoming more intensive in character, but by reason of scarcity of water there are only about 250,000 acres of land actually irrigated. Storage reservoirs seem to be an imperative necessity. Of the 72,000,000 acres of land of the Territory only 5,200,000 are privately owned. A great variety of fruits, grain, and vegetables are raised to perfection in the Territory, ranging from those of the colder countries of the north to the fruits and flowers of the Tropics. Corn, wheat, barley, sorghum, alfalfa, sugar beets, oranges, lemons, dates, grapes, apples, pears, melons, olives, and a wide range of vegetables are successfully raised.

The work of the topographic survey during the past year covered an area of about 1,000 square miles and is an important work.

Great possibilities are predicted from the extended development of the supply of artesian water, which is coming to be extensively and most successfully used for irrigation.

Mining has always been the backbone of industrial development in Arizona, which contains some of the largest mining camps in the United States. Extensive improvements are being made in mining properties, and the population of mining centers is being increased. Mining surveys to the number of 151 were ordered during the year, embracing 596 lode claims, 24 placer claims, and 17 mill-site claims, a total of 637, as against 371 claims of the preceding year. The past year witnessed greater activity in all branches of mining than has ever before been recorded. Copper and gold mining are carried on profitably and extensively, and the annual product is regularly increasing. Plants are being increased, camps are being enlarged, and great expansion and developments will soon follow. Silver, lead, zinc, manganese, and asbestos are also being mined successfully. As the water supply shall be increased for operating the mills and the transportation facilities extended, enormous values in mineral products will be taken from the great treasure storehouses of the mountains of Arizona. To the geologist Arizona, with its varied geologic conditions and its

extraordinary variety and wealth of mineral productions, presents a most interesting field, as shown by an extensive and interesting report submitted by Prof. William P. Blake, Territorial geologist.

The report of the superintendent of public instruction presents exhibits which show most excellent educational conditions. Out of 25,951 children of school age in the Territory, 20,008 are enrolled in the public schools and 1,414 in private schools, showing that more than five-sixths of the children are being liberally educated. More than 3,700 additional volumes have been added to the school libraries during the year, and $72,240.12 more was expended in new school buildings and furniture than during the preceding year. The salaries paid to teachers during the school year amounted to $234,682.42, averaging $80.35 for each male teacher and $67.53 for each female teacher per month. There are 278 school districts, in which are employed 474 teachers, and the total amount expended for the support of the public schools was $415,213.15. Eleven new schoolhouses were built. The University of Arizona is located at Tucson and is thoroughly equipped for university work. There are two normal schools which are doing excellent educational work. One was established in 1885 and is located in Tempe. The other was established at Flagstaff in 1899.

Church work has followed closely the great material advancement of the Territory, as shown by increase of membership, the building of new churches, and the widening scope of activity of church workers. Nearly every denomination of the Christian Church is represented.

Second to mining the live-stock industry stands in importance in Arizona. Three commissioners, known as the live-stock sanitary board, administer the laws of the Territory regulating the raising and handling of live stock. Recent legislation has marked a new era of prosperity for this industry, and will eliminate the cow thief and the rustler, and also stamp out and protect against infectious and contagious disease among the cattle. The past year, with its abundant rains and progressive legislation, produced conditions of success never before realized by the stock interests of the Territory. The grade and quality of range stock is being greatly improved. Hereford cattle rank high in popular favor. Scrub range horses are being gotten rid of, and fine grades of horses are being raised upon the ranges for market. There were 41,803 head of cattle slaughtered during the year for home consumption, and there were exported 78,846 head of cattle, 2,880 head of horses, and 2,426 hogs, while the internal shipments of cattle were 39,175.

The grade of Arizona sheep is a very fine merino, producing about 7 pounds of wool per head. The wool clip for the year was 3,500,000 pounds, and the total value of the sheep product was estimated at

$1,130,000, excluding from 100,000 to 200,000 sheep owned by the Navajo Indians.

There are two ostrich farms in the Salt River Valley, near Phoenix, as the result of an enterprise first started in 1893 by the importation of 16 birds from South Africa. The feathers are plucked every eight months and sell as high as $125 per pound. As much as a pound of feathers is taken from a bird at a single clipping. There are over 1,000 of the birds on these two farms.

What activity there has been in railway construction and improvement during the year has been principally in the extensions of existing lines to new points in the Territory and in the betterment of roadways, bridges, trackage, and equipment of the same.

The Arizona Rangers are a body of picked men enlisted from the fearless cowboys of the Territory, and are represented as among the finest body of rangers ever recruited for frontier service. They are organized under an act of the legislature and consist of 20 privates and 5 officers under the command of Capt. Thomas H. Rynning. Their personnel is unknown to the general public and their presence in any community is seldom known until their work is completed, but they are successfully ridding the Territory of outlaws, cattle thieves, and rustlers, and giving ample protection to the stockman even in remote portions of the Territory.

The Indians in Arizona are peaceable and industrious, and are engaged in agriculture and stock raising and their children are being generously educated in training schools. Detailed statements are submitted from the various Indian agents throughout the Territory which are full of interest and show progress and improvement in the condition of the Indians generally. The Phoenix Indian School has an enrollment of 1,825 pupils, representing 30 different tribes, and is located upon a farm of 240 acres, 3 miles from Phoenix. The Tucson Indian Training School and the Fort Mohave Indian School are in most flourishing condition.

The Pima Agency covers three reservations and three tribes of Indians—Pima, Maricopa, and Papago. There is a boarding school at the agency at Sacaton, a mission school at Gila Crossing, and six day schools on the reservation. The Moqui training school at Keams Canyon has an average attendance of 175 pupils.

The material advancement being made by the Navajo Indians is shown to be of a permanent character, and the success and thrift with which many of them manage their herds of sheep have resulted in the accumulation of some thousands of dollars each to this class.

The Apache Indians supply forage to the military posts, when permitted, to the extent of $12,000 to $15,000, and earn as much as $30,000 a year from hay, corn, barley, wood, and charcoal. They also earn wages by working in the construction of roads and canals. The sug-

gestion of the allotment of the lands in this reservation is strongly discouraged by the agent as impracticable and as disadvantageous to the Indians.

Wonderful and majestic works of nature are found in Arizona in the Grand Canyon of the Colorado River; the Natural Bridge, which spans Pine Creek in Gila County, and the large petrified forests extending over many miles in Navajo County. The cliff dwellings in Yavapai and Coconino counties, Montezuma's well and castle in Yavapai County, the ice caves of the San Francisco Mountains, numerous hot springs in different parts of the Territory, and the ancient ruins of prehistoric interest are profoundly interesting to tourists. The principal mountain ranges rise from 7,000 to 12,500 feet above the sea and provide charming scenery, beautiful natural parks, and many mountain streams well filled with fish.

Newspapers are established in all the cities and towns of importance, and are generously patronized. Labor is organized in most all of its branches, a Territorial organization embodying all labor organizations is in existence, and there are many intelligent, skilled, and industrious workmen among the various trades.

The governor presents on behalf of the citizens of Arizona a most earnest renewal of their demand for admission to statehood, and that as an independent State, without combination or union with New Mexico, and submits several strong arguments in support of the justice and advantages to the Territory to be derived from such admission. The governor submits the following recommendations:

1. That Arizona's claims to statehood be given due consideration, and that such aid as lies within the power of the Interior Department be extended to secure the passage of an enabling act for the admission of the Territory to statehood.

2. That the Congress of the United States be requested to reimburse Pima County, Ariz., in the sum of $318,275.29 by direct appropriation, as being repayment to said county for an injustice committed by Congress in passing an act which validated certain 150 bonds, with accrued interest, known as the Pima County Narrow Gauge Railroad bonds, after the entire issue of said bonds had been declared by the Supreme Court of the United States to be invalid and void and for which Pima County had never received value.

Memorials from the twenty-second legislative assembly of Arizona, including memorial from the boards of supervisors of Pima and Santa Cruz counties to the legislature of Arizona, reciting all the facts in the case and requesting reimbursement, have been furnished the presiding officers of each House of Congress, and are attached hereto as a part of the appendix.

3. That the Indian school facilities in Arizona be increased in order to more quickly prepare the younger generation to become self-supporting, and that measures be taken to more properly care for the graduates of these schools by finding for them proper employment, thus aiding in preventing their return to former modes of life.

4. That surveys be made and an appropriation asked for the construction of a levee from the town of Yuma to the Mexican line, to prevent the overflow of cultivated land along the Colorado River by the annual freshets.

5. That appropriate measures be taken looking to the rejuvenation of the depleted

forest area in this Territory, and that a system of tree and tree-seed planting be inaugurated by the Division of Forestry in order that the watersheds of the various streams in the Territory may be kept unimpaired as sources of water supply.

6. That further and extensive systems of water storage and systems of power under the provisions of the Hansbrough-Newlands Act be inaugurated in Arizona, until all flood and subsurface waters are made available for purposes of irrigation.

7. That appropriations be made for the purchase of sites and the erection of public buildings in cities in this Territory, where the same can be shown to be of ultimate benefit to the General Government.

8. That the appropriation for the contingent expenses of the governor's office be increased sufficiently to provide additional clerical force when needed from time to time for the expedition of the increased business of the office.

9. That the salary of the governor of Arizona be increased to a sum commensurate with the duties required of him; that he be placed in this respect upon a par with the governors of newer Territories; or, if that be refused, that at least the sum allowed by law be appropriated as his compensation. Fairness and justice would require that the salary of the office be increased.

In an appendix to his report the governor presents detailed statements from the officials of the several counties and principal cities and towns of the Territory, which show prosperous and progressive conditions and give valuable information as to the local conditions existing in every section of the Territory.

The question of the admission of the Territory as a State is one wholly within the jurisdiction of Congress, and this Department can do no more than direct your attention to the views of the governor in the matter.

Hawaii.

A review of the extended and interesting annual report of the governor of the Territory of Hawaii, Hon. Sanford B. Dole, presents some valuable information as to the progress, development, and present status of the Territory, with recommendations as to further measures of administrative policy. Social conditions, finances, fire-claims commission, coinage, commerce, immigration, public lands, agriculture, forestry, labor, elections, education, public health, corporations, appropriations, legislative, judicial, and executive departments are all extensively discussed in the report.

The school children of the Hawaiian, Portuguese, Japanese, and Chinese races number 16,229, being an increase of 945 over the previous year. The school children of European descent other than Portuguese, and of American descent other than Porto Rican, number 1,505, an increase of 18 over the previous year.

Intermarriages are frequent between Hawaiian women and white men, and the offspring of such marriages are an improvement in thrift and enterprise over the pure Hawaiian.

The census of 1900 showed that there were among the population 56,234 Japanese, 29,799 Hawaiians, and 27,741 Chinese. From these three classes there were made during the year 1902 an aggregate of 7,480 arrests, principally for gambling and drunkenness.

Presenting financial conditions, the report shows that on July 1, 1902, there was on hand a balance from appropriations of $5,066,509.24, of which $3,675,312.45 had been drawn by June 30, 1903, leaving an unexpended balance of $1,391,196.78, and that of the sum of $804,242.80 appropriated by the legislature of 1903 and available before July 1, 1903, there remained an unexpended balance at the latter date of $409,260.27. The receipts for the fiscal year ending June 30, 1903, from taxes amounted to $1,651,023.12 and from other sources $997,239.38, which revenues, added to the sum of cash on hand in July 1, 1902, make a total of $2,935,393.88, against which the disbursements by the Treasury Department amounted to $2,862,212.25, leaving a balance in hand of $73,181.63.

Of the taxes collected $560,456.31 was from real estate, $592,325.37 from personal property, $205,096.77 from income tax, and the remainder from various franchises.

The total appropriation for "fire claims commission awards" was $1,500,000, of which amount $1,000,000 was assumed by the United States Government. The commission paid awards amounting to $1,473,173, leaving an unexpended balance of $26,827.

The United States Government has assumed $4,000,000 of the bonded debt of the Territory, and had paid on this account up to June 30, 1903, $3,014,870.31.

Hawaii has still outstanding bonds amounting to $1,917,100.

The legislature made appropriations in the nature of subsidies to the amount of $80,493.33 and of pensions to the amount of $8,300.

The "Chinese fund" accumulated under laws existing in Hawaii prior to the creation of the islands into a Territory, for the deportation of Chinese laborers, when they should cease to work as such, was the result of a deduction from their wages for this purpose. It amounted to $155,546.70.

Under an act of the Territorial legislature approved April 28, 1903, this fund is being distributed to those entitled to it, and up to July 22, 1903, 2,300 claims amounting to $89,986.30 had been settled.

Of an issue of $973,000 of Hawaiian coins the United States had redeemed up to August 18, 1903, $763,000. Strangely enough the entire issue of $25,000 of dimes was gathered up by collectors and souvenir hunters and none of them were redeemed.

Commercial statistics show a gratifying condition as indicated by an increase in the value of shipments of many of the products of the Territory, and especially of sugar, coffee, fresh fruits, honey, hides, and raw wool.

The increase in the value of sugar alone, which is the largest item, amounted to $1,390,571, and the value of the sugar amounted to $25,310,684. Coffee exports, after having fallen off in the previous year, show an increase of shipments amounting to 720,456 pounds.

Rice is a diminishing product, by reason of competition of other fields in Texas and Louisiana, and as a result of the diminishing number of Chinese in the Territory. The imports from the United States were of the value of $12,675,026, and from foreign countries $3,142,013. The exports to the United States were valued at $26,242,869, and to foreign countries at $32,569.

The vessels engaged in this commerce are represented by a record of 551 entries, with an aggregate tonnage of 980,847 tons, of which 426 were American vessels, with a tonnage of 673,418 tons, and 552 clearances, with an aggregate tonnage of 971,359 tons, of which 430 were American vessels.

The ocean cable recently completed connecting the Hawaiian Islands with the United States is represented by the report of the governor to be of great importance to the Territory officially, commercially, and socially.

The department of public works has charge of the construction and maintenance of roads and bridges and supervision of waterworks, sewerage, fire departments, wharves and harbors, and other public works. Roads and bridges are maintained by appropriations and by a special road tax, and the expenditures for roads and bridges in the islands of Hawaii, Oahu, Kawai and Niihau, Maui, Molokai, and Lanai amounted to $569,260.10. The expenditures of the department amounted to $925,526.48.

The work of the public survey has been limited through inadequate appropriations, though some field and office work has been done at a cost of $30,748.23.

The Commissioner of Public Lands submits a detailed report of the work of his Office. Under the land act of 1895 there were taken up through right of purchase leases, cash freeholds, special agreements, and homestead leases 209 holdings, with an acreage of 20,912.41 acres and a value of $48,231.82. Of these holdings over two-thirds were taken up by white settlers. Land revenues from rents, interest, and land sales amounted to $123,069.38, being an increase of $6,146.05 over the previous year.

The most promising crops for the Hawaiian farmer are sisal fiber, castor beans, vanilla beans, starch (Hawaiian and Kasawa), and pineapples, and by an act of the legislature all property actually in use for the production of these crops are exempt from taxation for the next five years. A great variety of vegetables of all kinds are raised for home consumption. Tobacco, vanilla beans, and rubber are as yet experimental. Hawaiian, Java, and Guatamala coffee are raised upon the islands, and the public lands still available for settlement are suitable for coffee cultivation. Cost of production and freight and foreign competition have somewhat discouraged the enterprise of coffee raising.

There are eight large pineapple plantations in the Territory, and

there are two canneries for preserving the fruit which grows in abundance, but up to the present is not being exported profitably to other markets as fresh fruit. The value of the exported canned pineapples has regularly increased annually from $348 in 1897 to $18,000 in 1902. Sisal is produced in quantities. The Hawaiian Fiber Company (Limited) has for several years been engaged in the production and sale of the raw material, and a statement of the cost of production per ton covering a period of more than four years, taken together with the high freight rates to New York, show the disadvantage under which this valuable product meets competition in the market. The existing company is, however, extending its operations, and a new company is being formed to cultivate large areas in sisal.

Efforts are being made to introduce many additional varieties of forest trees into the Territory, and the forests are being carefully inspected by Mr. William S. Hall, of the Bureau of Forestry.

The work of reforesting Nuuanu Valley, near Honolulu, was begun five or six years ago and has been only partially successful.

The manufactured fertilizer produced in the Territory has an annual value of $1,500,000, and is consumed in local agricultural enterprises.

In the field of mechanical and other classes of labor the competition of the Japanese and Chinese is formidable to the Anglo-Saxon, and there appears to be a growing sentiment that since the Territory has been placed under American supervision these industries should be beneficial to American citizens, and suggestion is made that Federal authority, legislative or executive, should stipulate that only citizens or those eligible to citizenship shall be employed on Federal work in the Territory.

Much important and progressive legislation was passed during the regular session of the legislature, which convened on February 18, 1903, but it adjourned without passing the necessary appropriation bills, and was convened in extra session on April 30, 1903, and sat for sixty days, passing appropriation bills to the amount of $5,004,544.51, to be paid out of the current revenues.

Governor Dole criticises the expenses of the legislatures as excessive and a waste of public funds beyond the necessities of the case, and points out several items of serious conflict between the organic law of the Territory and the provisions of a voluminous statute known as "the county act," providing for the "organization and government of the counties and districts and the management and control of public works and public institutions therein." The questions involved cover the management of public institutions and the control of public property, and will require Congressional sanction or local Territorial legislative amendment.

The total number of civil cases in the courts during 1901–2 was 5,056. The arrests in criminal cases were 21,752, and there were

15,999 convictions, of which 11 were for murder, 5 for homicide, 3,775 for drunkenness, and 5,097 for gambling.

The military organization of the Territory is represented by the First Regiment National Guard of Hawaii, consisting of seven companies (A, B, C, E, F, G, and H), comprising 23 officers and 581 enlisted men, and commanded by Col. J. W. Jones. The regiment is supplied with field pieces, small arms, and other ordnance and military equipments to the value of $32,427.82.

All of the public schools of the Territory are free and open to all classes of the population. The American, the Asiatic, the Malay, and the European sit side by side and associate in the playground in perfect harmony. The total enrollment of pupils in all of the schools is 18,415, of which 13,793 are in the public schools and 4,622 in the private schools. There are nearly *3,000 more pupils in the schools than there were in 1900.*

There are 203 schools, of which 144 are public schools and 59 private schools, employing in all 633 teachers, of whom 450 are female and 183 male. A few more than one-half of the teachers are Americans. The Hawaiian, part Hawaiian, and Portuguese children represent two-thirds of the pupils. The American children number only 799. A strenuous effort has been made for the establishment of two industrial schools of a reformatory character, one for girls and another for boys. The Waialee Industrial School has been established upon an estate of 700 acres, located about 5 miles from Kahuku, and 68 boys from the old reformatory school at Honolulu, which had failed to be a success, have been installed therein, and instructions are being given in agricultural and mechanical work and in other studies.

The buildings and fittings of the girls' industrial school have also been provided, and were, at the date of the report, ready for occupancy.

The disbursements for the year for the maintenance of the public schools, including salaries, current expenses, and new buildings, amounted to $390,514.18.

The classification of school children includes Hawaiian, part Hawaiian, American, British, German, Portuguese, Scandinavian, Japanese, Chinese, Porto Rican, and other foreigners. Attendance at some school is compulsory between the ages of 6 and 15 years, and there are 16,218 pupils in the schools between these ages.

The superintendent of education reports that with only a few exceptions, chiefly among the Asiatics, the pupils are by right of birth American citizens, and he estimates that these amount to 18,000.

Laws against the adulteration of foods, medicines, and drinks in the Territory are made effective by a system of inspection.

There were 166 patients in the insane asylum at Honolulu on June 30, 1903, and there had been 35 discharges and 15 deaths during this year.

At the leper settlement at Kalawao the government conducts a considerable farm, upon which taro, milk, and pork are produced for the inmates, of whom there are 888. Of this number 797 are Hawaiians and 8 are Americans. Out of 129 persons inspected during the year on suspicion, 124 were found to be lepers, of whom 84 were males and 45 females.

The vital statistics show 996 marriages, 2,386 births, and 2,581 deaths. The annual death rate per 1,000 of population was 16.76.

Fishery laws prohibit the use of explosives in taking fish, and regulate the size under which certain species of fish may not be taken. The principal fishermen are Japanese and Chinese.

On June 30, 1902, there were in force 409 domestic and 24 foreign corporations, to which were added during the year 33 domestic and 3 foreign corporations.

There are four steam railways in the Territory for passengers and freight, and one electric passenger railway, known as the Honolulu Rapid Transit and Land Company. The latter company reports that during the year it carried 4,779,933 passengers, had a gross income of $235,912.13 and a net income of $74,757.78. The road has a total mileage of 15.88 miles. Two other lines of railway have been surveyed, but the construction has not been begun. Statistics are only given as to two of the steam roads which are in operation. The Kahalui Railroad Company has a mileage of only 12 miles, 4 locomotives, 5 passenger cars, and 90 freight cars. The Hawaii Railway Company has a mileage of 22 miles, 4 locomotives, 4 passenger cars, and 70 freight cars. It carried during the year 1,200 passengers at an average fare of 50 cents and 15,000 tons of freight at the rate of 10 cents per ton per mile. It paid 6 per cent dividend on its capital stock of $50,000.

The legislature of 1903 passed "An act to license the brewing and sale of malt liquors," for a term of fifteen years, upon an annual payment of $250 annual license. Under this statute only one license has been issued, and that to the Honolulu Brewing and Malting Company (Limited). Three other important franchises were granted by special acts. One of these was for the manufacture and supply of fuel and illuminating gas and its by-products, in Honolulu, another for the construction of a railroad on the island of Kawai, from Kekaha to Hanalei, and a third for the right to the Hawaiian Electric Company (Limited) for the period of thirty-five years, to manufacture and sell electric light and power in the island of Oahu.

The governor recommends that Cocoanut Island, in Hilo Bay, be reserved as a free public pleasure ground, as the Federal authorities do not desire it for a quarantine station, for which it had been reserved.

That section 80 of the organic act be so amended that the governor may suspend any officer, in regard to the removal of whom the advice and consent of the Senate is necessary, until the next succeeding ses-

sion of the Senate and may, except in the case of the auditor, appoint some one to fill the office in question pro tempore until the question of the removal of the suspended officer is settled, such officer not to be entitled to pay for the period of the suspension in case of his ultimate removal by the governor and Senate; or, in the alternative, that the governor may remove any of such officers without the advice and consent of the Senate.

That warrants of the auditor be required for payments of legislative expenses, with authority in the auditor to refuse such warrants unless satisfied that charges for service or material correspond to prevailing prices for such work or material; that the Federal Government assist the Territory in the scientific study of leprosy and investigation of measures and remedies for its cure and amelioration; that section 55 of the organic act be so amended that bonds and other instruments of indebtedness authorized by the Territory may be made redeemable in ten years instead of five, as now limited, and may be made payable in twenty, twenty-five, or thirty years instead of fifteen, as now required. That the payments of taxes for calendar years previous to a general election, and before the end of such year, be made a prerequisite for registration for voting at such general election, except taxes upon assessments that have been appealed from and are in litigation at the time of registration of voters.

That section 54 of the organic act be so amended that the governor shall not be required to call an extra session of the legislature for consideration of appropriations for necessary current expenses of carrying on the government and meeting its legal obligations in case of the failure of the legislature to make such appropriations in the regular session, and that in case of such failure the last appropriation bills for such purposes shall be deemed to have been reappropriated. That a tariff duty on foreign coffee of 2 or 3 cents a pound be established. That a limited immigration of Chinese laborers to the Territory be permitted upon their engaging only in agricultural, mill, and domestic work during their stay, and subject to deportation at their own expense upon their ceasing to do so.

That there be recognition by treaty of authority in Chinese consuls accredited to the Territory to administer the estate of Chinese citizens dying intestate in the Territory. That an expert forester be maintained in the Territory for a sufficient time for him, acting with the Territorial board or commissioner of agriculture and forestry, to organize a system for the conservation, development, and management of Hawaiian forests.

That the Federal Government assume the management of Hawaiian light-houses and the improvement and care of Hawaiian harbors, or, in the alternative, that the transfer be made to the Territory of a sufficient portion of the customs revenues received at the ports of

entry in the Hawaiian Islands so as to permit the Territorial authorities to make these improvements.

That the expenses incurred by the Territory in the management of light-houses and the improvement and care of harbors from and after June 14, 1900, be refunded by the Federal Government. That buildings for the offices of Federal officials be erected in Honolulu and Hilo. That a breakwater be constructed for the protection of Hilo Harbor, Hawaii.

The governor estimates for appropriations as follows:

HARBOR IMPROVEMENTS.

Widening the channel and dredging the harbor and channel of Honolulu	$250,000
Maintenance of buoys	6,000
Construction of breakwater, Hilo Harbor	1,000,000
Dredging of projecting coral and sand spits, Pearl Harbor	100,000
Total	1,356,000

NEW BUILDINGS.

Federal buildings, Honolulu	1,000,000
Federal buildings, Hilo	100,000

LIGHT-HOUSES.

The governor also submits a list of sites suggested for light-houses in Hawaiian Islands with probable cost of construction, amounting to $74,400, and submits that these suggestions for lights have been made after a personal inspection of each locality and consultation with masters of vessels directly concerned. He recommends that such light-houses and dwellings of keepers as may be decided on be transferred to the United States, under the provisions of section 91 of the organic act. For the maintenance of present light-houses an appropriation is required of $14,000.

New Mexico.

The annual report of the governor, Miguel A. Otero, shows that the Territory has progressed steadily along industrial, educational, and other lines, and has enjoyed a year of quiet prosperity.

The Territorial legislature met during the first two months of the year and enacted legislation the good effects of which are noticeable in more than one direction. These laws affect the public school system, the building of good roads, the maintenance of penal, educational, and charitable institutions, the regulation of water and irrigation rights, and the encouragement of industrial enterprises. The legislature created the offices of traveling auditor and bank examiner and of game warden, provided for the compilation and publication of the Territory's school laws, the organization of the counties of Roosevelt, Quay, Leonard Wood, Sandoval, and Torrance; changed the boundaries

of Guadalupe County and its name to Leonard Wood County, took one precinct from Santa Fe County and added it to Rio Arriba County, and added a small portion of southeastern Socorro County to Otero County.

It further provided for the establishment of an asylum for the blind at Alamogordo, of a miners' hospital at Raton, a reform school at Elrito, and an orphan's home at Belen; it appropriated $30,000 for a New Mexico exhibit at the Louisiana Purchase Exposition at St. Louis next year, and provided means for the completion of the fine new school for the deaf and dumb at Santa Fe, and the beautifying of the park that surrounds the capitol. Emphatic resolutions in favor of statehood were adopted.

The assessed valuation of the Territory is almost $42,000,000 for 1903, a net gain of over $700,000 since last year, but an actual gain of almost $3,000,000 owing to the elimination of many double assessments which were carried by assessors in former years.

Owing to the building and completion of several important railroad lines, many new settlers have come into the Territory during the past year, and especially in the eastern and southeastern portions has the gain in population been very rapid. On June 30, 1903, the estimated population of the Territory was 284,000, a gain of almost 90,000 since the census was taken, and more than three times the population of the Territory in 1860. Of the present population, 144,000 came from the States or are children of parents from the States, 127,000 are native or mixed descent, and 13,000 are Indians.

The work thus far inaugurated by the Department toward the reclamation of the arid regions under the new irrigation law has aroused much interest and has given great encouragement to the people of New Mexico, who are the pioneers in irrigation methods and enterprises. At present almost half a million acres are under irrigation in New Mexico, and the results obtained are very significant. The farm values in the Territory exceed those of any other branch of industry. This and the building of the new railroad lines has led to the taking up by entry under the Federal land laws during the past fiscal year of 1,032,128 acres, of which 468,196 acres were under the homestead act. In the past three years over 2,000,000 acres of public land have thus been taken up—over 1,100,000 acres under the homestead law; there yet remains, however, something over 50,000,000 acres of public land subject to entry.

The mineral production of New Mexico during the past fiscal year has been somewhat below expectations, but the development work done, the modern mining machinery installed, and the influx of capital are indications, it is claimed, that the mineral productions of the Territory will increase in a great measure within the present decade. From 1860 to 1900, $17,600,000 worth of gold was produced, and during

the past three years 20,400,000 pounds of copper. Last year the gold production amounted to $384,685; silver, $148,659; copper, $860,737; lead, $94,939. Of iron, the Colorado Fuel and Iron Company alone took out of its mines during the fiscal year 138,152 tons of 2,240 pounds each. The coal mined during the past year was over 100,000 tons greater than during the year preceding, and a number of important new mines have been opened. The production during the year was 1,359,530 tons, and during the past three years amounted to 3,710,004 tons, valued at $5,011,281. The area of prospected coal lands is 1493,480 acres, with something over 8,000,000,000 tons of coal in sight, valued, approximately, at $10,000,000,000. In the past three years coke amounting to 94,097 tons was produced, valued at $252,642, the output of the past year having been 26,353 tons, valued at $76,919. The men employed in the 28 coal mines of the Territory numbered 2,341.

On June 30, 1903, there were 2,520 miles of railroads in the Territory, an increase during the past three years of 841 miles and during the past year of 257 miles. Railroad building is still actively progressing, and the completion within the year of the lines under construction now will give the Territory 3,000 miles of road. This building of railroads has led to the founding of a number of new towns, the rapid growth of several of the older towns, and the influx of immigration from neighboring States and Territories.

There are 1,123,000 head of cattle, 5,674,000 head of sheep, 113,000 head of goats, and 97,500 head of horses in the Territory. Its wool crop in 1902 was 22,000,000 pounds. The stock industry stands second only to agriculture as a wealth producer and as a mainstay of the people of the Territory. The vast public range, the many acres in alfalfa, and the bettering of the grade of stock have placed the stock industry on a prosperous basis, admitting of future growth and improvement.

The Territorial finances are in good condition. While on June 30, 1901, the indebtedness of the Territory amounted to $1,180,800, on June 30, 1903, the indebtedness had been reduced to $1,098,300, and $134,590.03 had been accumulated in the sinking fund, while the other funds showed a surplus after all bills had been paid in full. The revenue of the Territory the past three years has been $1,545,241.37, of which $576,410.86 was collected during the past fiscal year. In the past three fiscal years 553 companies filed incorporation papers, the capitalization amounting to $309,711,966, two hundred companies with a capitalization of $100,529,541 having incorporated during the past fiscal year. During the past three years insurance companies authorized to do business in the Territory collected in premiums $1,998,444 and paid out for losses $672,415.50; during the past year the premiums amounted to $766,389, and paid losses amounting to $251,342. There are 19 national banks and 11 Territorial banks doing business, an

increase of 4 national banks since last year; these banks had a capital stock of $1,439,200, resources amounting to $10,696,449, and deposits aggregating $7,440,409.99.

These figures, gleaned at random from the report, indicate that the material and financial conditions existing in New Mexico are not only very gratifying but of a permanent nature.

Considerable progress is reported along educational lines. The children of school age in 1901 numbered 53,008; in 1903 they numbered 68,152, a school census being taken every year. The enrollment in the public schools in 1903 is 37,646; in 1900 it was 21,761, and last year 35,227. The average daily attendance in 1903 is 24,856; in 1901 it was 19,451. In 1903 there are 665 public schools, with 757 teachers, against 599 public schools and 671 teachers in 1901. The expenditures during the year for the public school system amounted to $287,545, against $202,882 in 1901. The average salary paid teachers is $56 a month. The total value of all school property in the Territory is $2,071,702, and the enrollment of pupils in all of the schools is 42,925, while the annual expenditures for the maintenance of all schools is $723,048. The amount expended for the public schools alone the past three years was $815,212.

Seventy newspapers are published in New Mexico, 5 of them daily and 60 weekly.

The Territory maintains 15 public institutions, the valuation of which, with grounds, but exclusive of their land grants, is $2,000,000; in addition it pays subsidies to 7 hospitals and an orphans' home. The value of the public school property in the Territory is $690,697, not counting the value of the school sections in each township. The value of the public property of counties and towns, not counting grants to towns like Santa Fe, Las Vegas, Socorro, etc., is $495,000, making the total value of public property in the Territory, exclusive of lands, $3,185,697.

The report thoroughly reviews the status of each subdivision of county of the Territory, special attention being given to industrial development, and each city and town of over 500 inhabitants is treated in the same manner. The varied industries and resources of the Territory are treated in special articles upon industrial features, such as certain phases of agriculture, horticulture, the raising of sugar beets, of tobacco, range grasses, live-stock interests, irrigation by means of storage reservoirs, artesian wells, and pumping with windmills and gasoline or steam engines, mining, etc. Then there are also articles upon climate, the geology of the Territory, the mineral production, railroads, population, archæology, and other subjects affording glimpses of activities and life in the Territory that demonstrate advancement in every direction.

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The commission of irrigation reports that of the lands granted by act of Congress, approved June 21, 1898, for the establishment of permanent water reservoirs, etc., the commission has approved contracts involving about 100,000 acres of land, and applications are pending involving an additional 100,000 acres. Fifty thousand acres of arid lands have been reserved by the commission under an expected contract for the reclamation thereof by means of artesian water, 50,000 acres have been reserved for sale and for reservoir enterprises, and the remaining 300,000 acres, including the 100,000 granted under the said act of Congress for the improvement of the Rio Grande, have been reserved by the commission for applicants under rights of pasturage, all of such reservation having been applied for and requisition made for its selection upon the United States Land Commission.

It is the purpose of the commission of irrigation just as soon as sufficient revenue accrues from pasturage rights and sales of lands within its jurisdiction to employ a thoroughly competent engineer and all expert assistants necessary, as provided in said laws of 1901, to investigate and select the most suitable sites for permanent water reservoirs and for the improvement of the Rio Grande, and in this manner to gather scientific and reliable data for the information of all parties who, with such information, would engage in the business of establishing such reservoirs, and particularly for submission to the Secretary of the Interior, to the end that New Mexico may receive its just share of the benefits under the act of Congress approved June 17, 1902, entitled "An act appropriating the receipts from the sale and disposal of public lands in certain States and Territories to the construction of irrigation works for the reclamation of the arid lands." There are several excellent reservoir sites in New Mexico, and when they are submitted to the Secretary of the Interior, together with the data above mentioned, it is expected that due attention will be given to them by him and that New Mexico will be greatly benefited thereby.

The cattle sanitary board reports that, "in common with other Western States and Territories, New Mexico has a few herds infected with scabies, mange, or Texas itch, which though not generally fatal, the cattle affected by it become very much emaciated and lose all merchantable value. The Territorial veterinarian is now in the field locating the infected herds and giving directions for their immediate treatment. The most vigorous measures are being taken to eradicate the disease. No infected animal will be permitted to come in contact with noninfected herds or to be taken out of the Territory until they have been treated for the disease and are declared to be clean and released by an inspector for the Bureau of Animal Industry or by the Territorial veterinarian. This order of the board will be rigidly enforced until the disease is thoroughly stamped out within the limits of this Territory."

The Board of Louisiana Purchase Exposition Managers reports that arrangements have been made for the erection of a New Mexico building at St. Louis at a cost not to exceed $5,000, the expenditure for such purpose being necessarily small on account of the limited appropriation. The work of collecting a comprehensive display of the Territory's wonderful resources is well under way throughout the Territory, and the people of the different counties are taking commendable interest in assisting the board by local effort. The mining industry will be fully illustrated and the magnificent products of New Mexico's farms, forests, and stock ranges will be intelligently shown. It is the policy of the board to make the New Mexico of to-day the guiding feature of the exhibit.

According to the report of the Bureau of Immigration:

> All indications point to the fact that owing to the efforts of the Bureau more capitalists, health seekers, tourists, and home seekers have come to New Mexico during the fiscal year ending June 30, 1903, than ever before in its history, and that many persons who finally made their permanent home in the Territory were brought here by the information scattered broadcast over the Union in the publications of the Bureau. In addition the Bureau has sent specimens of minerals and agricultural products to the several congresses and expositions during the year, where they have attracted much attention and favorable comment.

Governor Otero's report also includes the reports and extracts of official reports of the United States officials stationed in New Mexico, the report of the United States mine inspector for New Mexico being especially explicit and valuable.

Governor Otero says of statehood:

> This is a subject of paramount interest to the people of this Territory now, as it has been for the last fifty years, during which time efforts have been made at almost every Congress for our admission as a State. Since my last report the population and taxable property have materially increased, as well as the building of railroads and the establishment of other large industrial enterprises, as shown in detail throughout this report. The statistics and information from official resources I consider the strongest arguments that can be presented at this time in this behalf.

The question of the admission of the Territory as a State is one wholly within the jurisdiction of Congress, and this Department can therefore do no more than direct your attention to the views of the governor in the premises.

OKLAHOMA.

The annual report of the governor, Thompson B. Ferguson, presents in an interesting and comprehensive manner the growth, progress, and resources of the Territory.

The Territory embraces 24,000,000 acres of fertile and productive land, and is situated between the twenty-fourth and twenty-seventh parallels north latitude, and principally between 96° 30′ and 100° west longitude. The climate is similar to that of Tennessee and northern Texas.

Portions of the Territory have been opened to settlement on six different occasions, one county added from the State of Texas and one made from "No Man's Land." The altitude is lowest in the eastern portion and gradually increases toward the northwest, where it attains 3,900 feet at one point in Beaver County. The country as a whole is well watered, there being many small streams and rivers, the general course of which is to the southeast.

In the space of fourteen years since the first land was opened to settlement the wealth of the inhabitants has steadily increased until at the present time it approximates $400,000,000. There has been a steady increase in population, the immigration ranging from 35,000 to 143,000 each year. The enumeration this year was incomplete, but the gain in population shown in those counties and townships from which returns have been received evidences a growth of about 25 per cent during the past year. A conservative estimate of the population of Oklahoma at the present time is 650,000. The number of foreign born is not over 5 per cent, and percentage of illiteracy is less than that. The Indian population is only about 12,000, and gradually decreasing. The colored population is most numerous in the southeast portion, having immigrated from neighboring States. In some counties there are no representatives of the race.

The amount of taxable property returned by the assessors was $84,134,472, an increase over last year of some $11,457,049. As the values fixed by the assessors are less than one-fourth the actual value, the total valuation of taxable property in the Territory may be stated as $400,000,000.

The Territorial tax levy for 1903 is 6¼ mills on the dollar, and the indebtedness amounts to $461,766.43, which includes $48,000 worth of bonds which were issued some years ago for educational purposes. A fund has accumulated for the payment of these bonds and now amounts to $43,738. The Territorial funds are deposited in banks and draw 3 per cent interest. Territorial depositories are required to give bond equal to or exceeding the deposits. There is now to the credit of the several funds $574,269.17.

The number of acres taken up by the homesteader was less than in former years, as the bulk of the land now vacant is better adapted to grazing than agriculture. Some 916,036 acres were filed on during the year, and there still remains vacant 3,089,768 acres. There has been reserved for the benefit of the schools of Oklahoma 2,055,000 acres, which is all leased and brings an income of $375,000 this year. There are nearly 8,000 leases. The term for which these leases are made is three years. Railways in crossing school land have condemned and taken right of way, for which they have paid the sum of $19,601.28. The legislature, at its session the past winter, provided for a special distribution from the school-land fund to the school districts of Kiowa,

Caddo, and Comanche counties, they having been omitted in the apportionment last year owing to a technical failure to comply with the law. The amount so distributed aggregated $36,363.23.

There are 2,192 school houses, valued at $1,347,257.15; 303 having been erected during the current year, at a cost of $190,861.44; and there has been expended during the year for teachers' salaries, sites, buildings, rents, repairs, library, and apparatus for the common schools the sum of $1,116,230.77. The expenditures during the same period for the seven higher institutions of learning were $249,736.39. Their combined enrollment was 2,818. The seven institutions of higher learning under Territorial supervision are the University of Oklahoma, located at Norman; the Agricultural and Mechanical College, at Stillwater; Edmond Normal, at Edmond; Northwestern Normal, at Alva; Southwestern Normal, at Weatherford; the Colored Agricultural and Normal University, at Langston, and the University Preparatory School, at Tonkawa.

The sources of income for the common schools are three: Direct district tax, county tax, and the rent from the leasing of the school lands.

During the past year normal institutes have been held in every county in the Territory. The separate school law is working very satisfactorily, the total enrollment of children of school age being 178,964. There are 14 Indian boarding schools and 8 mission schools for the education of the Indian children located at various points in the Territory.

Oklahoma is well supplied with railroads, the principal trunk lines of the Southwest being represented; every county has some railway mileage. Total mileage in Territory on March 1, 1903, was 2,533.31. Fully 1,000 miles of main track has been completed during the year.

The total assessed valuation of railroad property was, on March 1, 1903, $7,851,187. Several electric interurban lines are chartered, and one is now being constructed between Oklahoma City and Guthrie. Both the Western Union and Postal Telegraph companies are doing business in the Territory. Several public lines of telephone bring into direct communication all cities, towns, and villages.

The extensiveness of Oklahoma's commerce is indicated by the reports of shipments made by the various railway companies whose lines enter the Territory. There were received at various points 27,414 carloads of commodities, consisting of farm machinery, immigrant goods, and other supplies. There were shipped from the Territory 68,478 carloads of products. In these figures are included nearly 20,000 carloads of coal shipped into and over 10,000 carloads of wheat shipped out of the Territory.

The estimated wheat yield is between 35,000,000 and 40,000,000 bushels, and corn about 65,000,000 bushels. The cotton industry is growing, and the crop this year will exceed that of last, which was

218,390 bales. Potato growing has been very successful in Pottawatomie County.

Oklahoma is peculiarly adapted to fruit growing, and large quantities of apples, peaches, cherries, and grapes are annually produced. More peaches were shipped to eastern markets than ever before.

The price of farm land is ranging higher than in past years; during the month of April 1,300 transfers were reported, averaging $17.82 per acre. There were 7,451,918 acres returned for taxation during the year, and the assessed valuation was $27,204,160.

Valuable service is rendered by the Weather Bureau in issuing daily bulletins forecasting the weather conditions in various parts of the Territory.

Stock raising is being gradually more and more confined to the small farms instead of the large ranches covering extensive areas, and as a result finer and better grades of stock are seen on every hand. The general live-stock conditions prevailing in the Territory are better at this time than during the corresponding period of last year; very little disease of any kind is reported, and the ravages of Texas fever have been reduced to a minimum, owing to a special quarantine of the counties adjacent to the quarantine line.

Portions of the Territory are thickly timbered with a large variety of woods; considerable has been cut for domestic purposes and the land cleared and put under cultivation. Among the undeveloped resources of the Territory may be mentioned the deposits of gypsum, oil, gas, salt, granite, and the minerals of the Wichita Mountains.

There are no Territorial public buildings; the Territorial prisoners, insane, and deaf and dumb are therefore cared for under contract with private institutions or neighboring States, although there is an increasing fund in the treasury created for the purpose of erecting public buildings. This fund amounts at the present time to $256,606.69. The Territorial legislature is powerless to authorize buildings, as Congress has by express legislation prohibited the exercise of that power; this should be remedied at an early day.

The last legislature enacted some measures pertaining to attorneys at law, banks and banking, the board of health, fire departments, corporations, counties, crimes and punishments, elections, game laws, herd law, hospital for the insane, inspection of oils, militia, osteopathy, school funds, taxation, sale of merchandise in bulk, and schools.

There are 21 cities, having a population ranging from 2,500 to 25,000; most of them have good systems of water works, electric lights, police and fire protection, good sidewalks, graded streets, and some public buildings; some have paved streets of asphalt or brick, sewer systems, gas plants, electric street-car lines, public parks, fine opera houses and churches; all, however, have good graded schools, and many have

beautiful and substantial school buildings. The assessed value of town property is $14,397,329. During the past year there have been erected 616 business buildings and 187 are in course of erection; 2,886 residences have been erected and 600 are in course of construction; 5 complete water-works plants and 3 sewer systems have been completed.

Manufacturing among the various industries which engage our population has made great advancement in the past few years. The raw material is at hand on every side, and the increasing number of flour mills, cotton-seed oil mills, plaster and cement mills, broom factories, shoe factories, foundries, gas and ice plants, cracker and candy manufactories, etc., all of which are in a flourishing condition, indicate that Oklahoma in the near future may be classed among the manufacturing States. There are 316 manufacturing establishments employing over 4,300 hands, and 200 wholesale houses having 2,182 employees.

There are 60 flouring mills having a combined output of over 10,000 barrels per day, and 280 grain elevators having a combined capacity of 3,525,000 bushels. Flour mills have increased their capacity about 25 per cent during the past year. The business reported has been very satisfactory, and no failure has ever occurred.

There are now 232 Territorial and 79 national banks doing business in the Territory, their combined capital amounting to nearly $5,000,000; there is on deposit in the Territorial banks over $10,000,000, and in the national banks about $8,000,000.

The act of the last legislature fixing $10,000 as the minimum capital stock of Territorial banks has had the effect of lessening the number of applications and promoting a healthier condition. The average reserve held by national banks is 30 per cent and that of Territorial banks 52 per cent. The reserve held by Territorial banks is nearly four times that required by law. Investors have found municipal bonds and other Oklahoma securities safe and profitable.

The high rate of interest formerly paid on farm loans is not now obtainable, owing to the prosperity and consequent independence of the farmer, who owns his farm and has a good bank account. The building and loan associations reporting show a creditable condition of affairs, no foreclosure of loans, and prompt payment of assessments.

Forty-six fire-insurance companies that are licensed to do business in the Territory wrote during the past year $45,818,923.90 of insurance, collected $716,054.72, and paid $282,027.77. Twenty-five life-insurance companies wrote $5,763,988.88 of insurance in 1902, collected $498,314.68, and paid $68,409.55. There was also $6,324,456.90 of miscellaneous insurance written by accident and casualty companies, upon which was collected $41,069.68 and $13,636.21 paid in losses.

Twenty-eight fraternal insurance companies wrote $12,441,268, assessed $146,183.35, incurred losses $130,007.32, and paid $120,657.32.

The total church membership is 96,271 and value of church property $997,150. Sixteen fraternal organizations have a membership of 37,851 and own property valued at $219,556.20.

Since the division of the Territory into seven instead of five districts the business of the courts has been less congested and the utmost expedition has been used in the disposition of the cases. The necessity of a separate and distinct supreme bench in place of the present system becomes yearly more urgent, as the judges require their entire time in these district sessions. There have been 7,358 cases docketed, 5,743 disposed of during the year; on June 30, 1903, there were on the dockets 4,131 cases. The Territorial law library is valued at $50,000 and is very popular and useful.

As Oklahoma has no Territorial prison, its convicts are cared for at Lansing, Kans., under a contract with the State authorities. The Territory has heretofore paid 35 cents per day for each convict. Recently, however, a new contract was entered into by which the Territory agrees to pay the sum of 40 cents per day for each prisoner, they to be treated in every way as are those of the State of Kansas. The number of inmates at present is 326. The cost to the Territory of care and keeping for the year ending June 30, 1903, was $39,551.20, and for transportation, $6,191.42; total, $45,742.62.

The Territory has a contract for the care and keeping of its insane with the Oklahoma Sanitarium Company. The sanitarium has recently been thoroughly overhauled and remodeled and much improved in equipment and in sanitary conditions. On June 30, 1903, there were 409 inmates. The cost to the Territory for transportation and care for the past year was $74,909.17.

Sixty-four pupils are in attendance at the Deaf and Dumb Institute. There have been no deaths or cases of serious illness during the past year. The amount paid by the Territory for their care and keeping was $15,548.53.

There are now registered 576 pharmacists. The number of licensed dentists was increased during the past year by 52, making the total at the present time 193.

The law governing the practice of medicine was made more stringent by the last legislature. There are some 1,200 physicians of all schools engaged in the practice of medicine.

The National Guard comprises 945 officers and enlisted men, distributed among 12 companies, 1 troop cavalry, 1 battery, 1 hospital corps, 1 engineer corps, and 1 signal corps at the present time.

There are published in the Territory 28 daily, 242 weekly, 17 monthly, 4 semimonthly, and 2 quarterly publications.

The number of acres of Government land which have been filed on as homesteads, the number of transfers reported by the registers of

deeds in each county, and the growth in population of every city and town in the Territory all indicate that the immigration into Oklahoma during the past year has been of considerable magnitude.

In regard to statehood the governor says:

> Our people are in every respect entitled to that which is dear to the heart of every progressive American—the right to govern themselves. Against this proposition there can be no logical objection. Oklahoma has the intellect, the wealth, the moral force, the energy, the natural resources, the development already achieved, and the promise of a splendid future sufficient to justly entitle her to careful consideration and Congressional action. No logical reason can be urged against her early admission into the sisterhood of States.

The question of the admission of the Territory as a State is one wholly within the jurisdiction of Congress, and this Department can, therefore, do no more than direct your attention to the views of the governer in the premises.

ANADARKO, HOBART, AND LAWTON TOWN-LOT FUNDS.—The details of the opening of the Kiowa, Comanche, and Apache lands in Oklahoma, and of the sales of the town lots in Anadarko, Hobart, and Lawton, the county seats of Caddo, Kiowa, and Comanche counties, respectively, were fully set forth in my annual report for 1901. The net amounts derived from said town-lot sales were as follows: At Anadarko, $186,910.47; at Hobart, $130,936; at Lawton, $412,355.38. These sums were promptly deposited by Assistant Commissioner (now Commissioner) W. A. Richards, of the General Land Office, in the United States subtreasury at St. Louis, where the funds have remained to this date, except for the disbursements therefrom under the act of March 3, 1901 (31 Stat. L., 1093–1094) and the act of June 30, 1902 (32 Stat. L., 506).

The said act of March 3, 1901, provided in part as follows:

> The receipts from the sale of these lots in the respective county seats shall, after deducting the expenses incident to the surveying, subdividing, plotting, and selling of the same, be disposed of under the direction of the Secretary of the Interior in the following manner: A court-house shall be erected therewith at such county seat at a cost of not exceeding ten thousand dollars, and the residue shall be applied to the construction of bridges, roads, and such other public improvements as the Secretary of the Interior shall deem appropriate, including the payment of all expenses actually necessary to the maintenance of the county government until the time for collecting county taxes in the calendar year next succeeding the time of the opening. No indebtedness of any character shall be contracted or incurred by any of said counties prior to the time for collecting county taxes in the calendar year next succeeding the opening, excepting where the same shall have been authorized by the Secretary of the Interior.

The said act of June 30, 1902, increased the appropriation for court-houses in each town to $30,000 each, and also appropriated from the respective town-lot funds "for public waterworks, schoolhouses, and such other municipal improvements as may be advisable and

advantageous to the inhabitants of said towns" the following sums: For the town of Lawton, $150,000; for the town of Anadarko, $60,000; and for the town of Hobart, $50,000.

For "expenses actually necessary to the maintenance of the county government" to January 1, 1903, which date was held by the Assistant Attorney-General for this Department to be the "time for collecting county taxes in the calendar year next succeeding the opening," the Department has paid from the respective town-lot funds the following sums: Upon claims against Caddo County, $39,412.17; against Kiowa County, $33,201.22; against Comanche County, $46,802.53.

In January, 1903, the Department was informed that a large number of warrants on the treasuries of the counties of Kiowa, Caddo, and Comanche had been issued. Said counties, at the time such warrants were alleged to have been issued, were prohibited by the act of March 3, 1901, from contracting or incurring indebtedness of any character "excepting where the same shall have been authorized by the Secretary of the Interior."

Upon receipt of this information payment of all claims pending in the Department was at once suspended and investigation ordered, the result of which disclosed the fact that the warrants issued appeared, from the county records, to affect no claims paid here and very few that had been presented to or were pending in the Department. In several instances, however, the county warrants had been issued in payment of claims that had been rejected by the Department or returned by it for a more complete showing. In these cases the Department has been able to protect the town-lot fund and the county by withholding payment of later claims until the claimant is able to show that the total of the payments to him, including warrants issued to him by the county, does not exceed the total of the amounts which have been actually and legally due him as against the county.

The attention of the Department about this time was also called to what were alleged to be grave irregularities in the procedure of the local authorities in Kiowa County in the matter of contracts for public improvements payable out of the town-lot fund. Immediate investigation was ordered, which resulted in the matter being placed in the hands of the United States attorney for Oklahoma, the outcome of which was the indictment and arrest of a contractor and two of the county commissioners, charged with conspiracy to defraud the Government.

The result of the disclosures in the counties named was the suspension of all applications for payments for alleged public improvements from the town-lot fund until the work for which payment was claimed could be thoroughly inspected by representatives of the Department. This has resulted, of course, in delaying the payment

of such claims, and has caused an outcry from those affected, but I have felt such action to be necessary for the proper administration and protection of the fund intrusted to me.

The claims under expenses necessary for the maintenance of the county governments, however, are at this date practically all disposed of, and the administration of the town-lot funds is at present concerned almost exclusively with the various public improvements for which said funds are available.

In the beginning the Department adopted the practice respecting proposed public improvements in the three counties of acting upon recommendations made by the local officers and approved by the governor of Oklahoma. This method was found unsatisfactory, as many of the questions involved were technical in character and required investigations and the preparation of plans and specifications by experienced engineers or architects. The submission to the Department of ill-considered plans and projects, disapproval of which was unavoidable upon careful examination, has caused much delay in beginning construction of needed public works, such as bridges, court-houses, jails, schoolhouses, and waterworks plants.

In considering plans for waterworks in the towns, the Department has from the first availed itself of the services of engineers of the Geological Survey, who examined the plans and visited the towns to study the local conditions. Their services were soon also called for in connection with numerous bridges, large and small, in the counties, the construction of which the Department was asked to authorize as payable from the town-lot funds. It became apparent that this demand for engineering services was rapidly increasing, and that very probably the entire time of several engineers would be required when actual construction of important works was begun, as the Department must be represented on the ground by its engineers acting as superintendents of construction. On April 21, 1903, upon his own recommendation, I authorized and directed the chief engineer, Geological Survey, to cooperate with the local authorities in initiating work on public improvements, and in the preparation of plans, estimates, and specifications, having in mind at all times the total fund to be expended for that purpose.

Since that time very marked progress has been made. Plans and specifications have been revised and approved for three school buildings at Anadarko, and bids thereunder are advertised for; plans and specifications for one schoolhouse at Lawton and for one at Hobart, also for court-houses and jails at Anadarko, Hobart, and Lawton, are in course of preparation. Plans have been approved and proposals accepted for six tool-proof jail cells, and a temporary jail to be erected at Anadarko in time for the November, 1903, term of district court,

and a proposal has been accepted for the erection of six jail cells at Hobart, in time for the February, 1904, term of district court. Plans have been approved for a waterworks system at Hobart, and the contract will be let and work begun as soon as possible after the city has raised an additional sum it has undertaken to provide.

The Department received and considered plans and specifications for the waterworks system at Anadarko, but withheld approval because it was learned on investigation that the water of the Washita River, which the plans proposed to use as a source of supply, is of very poor quality, and would probably prove, in dry seasons, to be insufficient in quantity. Upon learning this, further investigations were taken up by engineers of the Geological Survey and have been carried on as rapidly as possible to the present time for the purpose of finding a suitable supply. Thirteen test wells have been drilled, from which the yield has been found to average about 4 gallons per minute each, the best well flowing 13 gallons per minute. The engineers estimate that to supply a population of 10,000 there would be required at least 100 wells such as this best one, spaced 100 feet apart, in a row at right angles to the general direction of flow in the water-bearing stratum of fine sand found at that location. The establishing of such a system, the engineers state, would entail costs of land damages and pumping plant which alone, in view of the limited funds available, would render it an undesirable proposition from a business standpoint.

Although the results so far are not all that had been hoped for, the examinations will be continued as long as there is any prospect of success. In the meantime authority has been given for the construction of a system to consist of water mains and fire hydrants, connected with an elevated storage tank to be filled from the Washita River. This partial system will afford some protection in case of fire, and can later be utilized in the complete waterworks system which it is intended to construct at Anadarko.

At the city of Lawton, also, the question of water supply has been and is a very serious problem.

On September 26, 1902, the Department approved a request of the mayor and city council of Lawton for authority to incur an indebtedness of $1,200, payable out of the town-lot fund, for the purpose of employing a certain engineer to locate a water supply and prepare plans and specifications for waterworks and sewerage for the city. The local authorities at once engaged the engineer, and when his plans and specifications were received, advertised for bids thereunder without first submitting the plans and specifications to the Department for approval.

On December 8, 1902, the Department received through the gov-

ernor of Oklahoma, for approval, a contract for the construction of the waterworks, in the sum of $104,989, together with a record of the proceedings of the city authorities in the matter of advertising for bids and letting the contract.

On December 11, 1902, the Department also received, through the governor, the plans and specifications for said waterworks.

The contract and accompanying papers were promptly taken up by the Department for examination, and the plans and specifications were referred to the Director of the Geological Survey with instructions to place them in the hands of one of his engineers competent to pass upon them for an early report as to the propriety of adopting the engineering features embodied therein.

In examining the contract and accompanying papers it was observed that the price named by the successful bidder and stipulated in the contract was about $17,000 in excess of the aggregate of the lowest bids received on the several parts into which the engineer had divided the construction work. The city authorities were at once called on, through the governor, to state fully and clearly their reasons for accepting this additional charge over and above the lowest bids received for furnishing the materials and erecting the plant under separate proposals. A letter of reply from the city clerk, dated December 19, 1902, was received. The explanations therein were found unsatisfactory, and the contract, by departmental letter of January 9, 1903, was disapproved and rejected. In the same letter the local authorities were advised to defer readvertising for bids until the Department had approved the plans and specifications.

On January 22, 1903, the Director of the Geological Survey submitted his report on the plans and specifications, in which report he stated that the distributing system and the arrangement of pipes and other details such as are common to the waterworks of other cities were apparently satisfactory, but that the construction of the proposed subsurface reservoir had been criticized as apparently not sufficiently strong to resist the variations in pressure of the water when standing at various heights inside the reservoir or fluctuating in the ground adjacent; and he called attention to the fact that the assumption appeared to have been made in the specifications that there is a flow of water through gravels at a depth of 20 to 30 feet beneath the surface of the ground, where it was proposed to locate the collecting gallery, although no evidence had been given to establish this assumption.

It was probable, he said, that there might be there a layer of gravel saturated with water, but that this water was moving, or would move, in any given direction was not evident. From the plans and specifications it did not appear how the water would be obtained in case it should be found that the water would not flow as anticipated.

A copy of the said report was sent to the engineer who had designed the system, and he was asked to make a detailed reply to the criticisms therein contained.

The engineer forwarded a reply, under date of February 2, 1903, with copy of his detailed reports submitted to the city authorities, relative to his investigations at Lawton with a view to locating a water supply. This reply with its inclosures was referred to the Director of the Geological Survey on February 6, 1903, with instructions to note the matters therein related, and to advise the Department whether the objections in his report of January 22 had been fully met, and what action in his judgment should now be taken in reference to the plans and specifications.

The reports forwarded by the engineer employed by the city showed, among other things, that the site selected by him for the pumping station, storage reservoir, and collecting gallery was located on Indian school lands northeast of the city. As the proposed structures would require a large expenditure of money, and no permanent right of occupancy of these Indian school lands could be granted by the Department, Congress was appealed to for a grant of the required site, with the result that there was incorporated in the Indian appropriation bill, which became the act approved March 3, 1903, a paragraph authorizing the city of Lawton, whenever the Secretary of the Interior shall determine the same to be necessary for the purposes intended, to erect, maintain, and operate, under such conditions as the Secretary of the Interior may prescribe, a pumping station, collecting gallery, reservoir, etc., upon the described tract within the limits of the reservation created for the Fort Sill boarding school.

At the same time that this grant was asked the Director of the Geological Survey was instructed, in view of the delay that seemed unavoidable in obtaining the required land, to have one of his engineers make a thorough examination of the situation at Lawton with regard to whether the proposed source of water was likely to prove sufficient to supply the city; as to whether the arrangement of collecting pipes, gallery, etc., as designed, was practicable to construct and would give satisfactory results in operation, etc.

In response to these instructions the chief engineer and several other engineers of the Survey visited Lawton, and afterwards submitted a report in which the whole waterworks situation at Lawton was discussed. This report was embodied in a letter of April 13, 1903, from the Acting Director of the Geological Survey to the Department.

The engineers had found but little evidence of the existence of the gravel beds and the underground flow of water, upon which depended the successful operation of the system, as described in the plans and specifications submitted. The acting director recommended, however, that this system and several other alternative projects suggested by

the engineers of the Survey be thoroughly investigated by these engineers, in order to determine what in fact is the best and most practicable means of obtaining a good and sufficient water supply for the city.

The investigation recommended by the acting director was authorized by the Department on April 21, 1903, and the engineers since that time have been continuously engaged in their tests and examinations. The question of an adequate water supply for the city of Lawton, however, remains at the present date unsolved.

The first well sunk at Lawton by engineers of the Survey was put down to a depth of 100 feet, terminating in limestone, with little prospect of finding water below this depth. This well was drilled largely for securing information relating to the arrangement of the stratifications. Several more were drilled to relatively shallow depths, the material and water encountered in them differing but little from what had been found in former test holes. Tests were made with a hand pump, and in certain of the holes the supply of water was found to be so large that it could not be affected by means of pumping with a hand pump. A centrifugal pump was then ordered from St. Louis. It was shipped from the east on July 6, 1903; but this, with a diaphragm pump ordered at the same time, for some unaccountable reason, had not been received, up to August 2, 1903, when the above facts were reported to the Department.

In the meantime the engineers established a camp at Dunbar Springs, near Lawton, and commenced the work of developing the spring. A certain amount of cleaning out was accomplished and a cofferdam built, to be sunk into the quicksand as the excavation progressed. This work was abandoned July 22, on account of a lack of pumps, without which it was impossible to work in the quicksand. A later report shows that this spring, when finally fully developed, was found to have a maximum flow during the dry season of 0.15 cubic foot per second—a quantity wholly inadequate.

The most recent report received from the engineers, dated November 21, 1903, shows that none of the proposed sources of supply at Lawton have proved, upon investigation, to be sufficient; the least unsatisfactory being (1) certain springs 18 miles distant, in the Wichita Mountains, the use of which would involve large cost and some uncertainty of a continuous supply, and (2) the originally proposed site on Indian school lands northeast of the city.

The engineers have submitted plans and specifications for two wells to be sunk on these Indian school lands, with temporary power house and boilers, pumps, pipe lines, reservoirs, etc., the cost of which they estimate will be approximately $70,560. They have stated their belief that this system will supply the city of Lawton with sufficient water to safeguard the city against devastation by fire and to provide

a supply, although a limited one, for domestic purposes during such further period of time as may be needed to locate a source of supply that will more satisfactorily meet the requirements.

I have approved these plans and specifications, and have authorized construction of the works in accordance therewith.

The study of the water supply for the cities of Anadarko and Lawton has been a very difficult problem, and the engineers have made excellent progress considering the conditions under which they have worked. They have borne in mind constantly the need for obtaining results as soon as possible. Any decision, however, reached without the most careful study would have resulted not only in a waste of a large sum of money but in endless trouble and dissatisfaction, giving the city a water system inadequate to supply water sufficient either in quantity or quality.

It is the desire of the Department to expedite in every proper way the construction of such public improvements as are authorized by the acts directing the purposes for which the said town-lot funds may be expended. The above and foregoing extensive statement of the course that has heretofore been pursued is made in order that the communities interested, as well as yourself, may be advised of the efforts put forth by this Department to expend said fund for their best interests only, and of the difficulties that have confronted it in its endeavor to protect the fund from the improvident projects of haste and impatience on the one hand and of the unscrupulous grafter on the other.

Porto Rico.

Commissioner of the interior for Porto Rico.—Section 24 of the act of Congress approved April 12, 1900, entitled "An act temporarily to provide revenues and a civil government for Porto Rico, and for other purposes," provides as follows:

> That the commissioner of the interior shall superintend all works of a public nature, and shall have charge of all public buildings, grounds, and lands, except those belonging to the United States, and shall execute such requirements as may be imposed by law with respect thereto, and shall perform such other duties as may be prescribed by law, and make such reports through the governor to the Secretary of the Interior of the United States as he may require, which shall annually be transmitted to Congress.

The report of the commissioner of the interior for Porto Rico shows that the department under his supervision includes within its organization the office of the commissioner, bureaus of public works, health, telegraph, agriculture and mines, docks and harbors, and the division of lands and forests, and archives.

On July 1, 1903, the division of lands and forests was, because of its prospective extension and the increased importance of its functions, designated and organized as a bureau.

The bureau of public works is charged with the construction, maintenance, and repair of insular roads and the care of public buildings. In the character of its duties and by reason of the large number of employees necessary to carry on its work, which during the past fiscal year involved an expenditure of $732,607, it easily ranks first among the several departmental divisions.

Road construction and repair have been prosecuted with vigor. About 20 kilometers of first-class road were completed during the year, but this does not represent all of the road work done. The fact that the trust funds appropriated by Congress, and which have provided the means for permanent improvements, are rapidly diminishing, and the further fact that the insular revenues are not sufficient to warrant additional appropriations for road construction, prompted the commissioner to distribute the means at command over more miles of road in repairs, drainage, and curing of bad stretches, putting the roads worked on in fair condition for travel. This plan has resulted in carrying relief to many communities sooner than could have been hoped for otherwise, and is giving good satisfaction.

The value of road extension is marked. The cost of transportation has been materially reduced, and the character of the vehicles used is changing from ancient ox carts to wagons of modern construction.

The climatic and physical conditions of Porto Rico are claimed to be naturally healthful; prevailing diseases, particularly tuberculosis and dysentery, being easily traceable to habits of living and sleeping, uncleanliness of person or surroundings, impure or insufficient food. Those evils are being intelligently combatted by the superior board of health, and progress is being made in spite of numerous discouraging obstacles. The rigid enforcement of a comprehensive system of food inspection has resulted in improvement in the quality of all kinds of food stuffs. The proper drainage of the cities and large towns is receiving careful attention. The island has been singularly free from contagious diseases. No case of yellow fever has appeared; no epidemic afflicted any community. Only 103 cases of smallpox were reported: nearly all were of a mild type of varioloid and none resulted fatally. The death rate has been materially reduced, and if the superior board of health could have the firm and earnest support of the local officials in the enforcement of its rules and regulations, a lower rate, normal in comparison with the percentage of Northern States and Territories, might be easily obtained.

The agricultural interests, the mainstay of progress and development, show satisfactory advancement in some lines, yet so little has been done in the past to enlighten the farmers and teach them scientific methods of cultivating the soil or of helping them to reach the markets, that they have much to learn and will need to be most patiently encouraged to step out of the old ruts.

The cane lands of Porto Rico, fringing the seacoast and reaching into the valleys between mountain spurs, are comparatively fertile. The removal of the duty on sugar provided a fine margin for profit on that staple and the opportunity is being taken advantage of. Two large central factories have been erected on the south side—one at Aguirre, its capacity having recently doubled, the other at Guanica, last year being its first season. Many factories, located at various points, have been overhauled, equipped with modern machinery, and their capacity largely increased.

The exportation of sugar and molasses during the past three years was: 1900–1901, sugar, 137,817,470 pounds; molasses, 2,848,314 gallons; 1901–2, sugar, 183,822,636 pounds; molasses, 3,080,132 gallons; 1902–3, sugar, 233,070,000 pounds; molasses, 3,537,000 gallons. The exportation of sugar during the fiscal year 1902–3 was, with the exception of the year 1884, the largest ever recorded, and amounted to 215,071,523 pounds. The prospect for the next year is encouraging, the question of the ability of the mills to grind the cane grown being already seriously discussed. That the sugar industry will take good care of itself and add largely to the wealth and prosperity of the island does not admit of doubt.

Coffee was once the leading item of export, valuable in its economic relation as an industry occupying land not adapted to any other purpose, and, in season, providing employment for a large number of laborers. The plantations were generally wrecked by the hurricane of 1899, and restoration, for various reasons, has proceeded slowly. Favorable weather has, however, permitted the groves to give promise of an abundant yield this fall, possibly equal to the annual average prior to 1899. But the planters are discouraged because of prevailing low prices. The crop has heretofore been quickly shipped to Europe, where the berry ranks high, but the duties are so heavy and the cost of transportation so great that the producer has little left as a return for his investment and labor. The commissioner believes that the hope of relief lies in a possible demand from the States. He claims that the quality is superior to the South American product, equal in strength and flavor to Mocha or Java, and that as the coffee is grown on United States territory it should be preferred at a fair price.

The area planted to tobacco is increasing, and the manufacture of cigars for export is developing rapidly; during the past year cigars were exported aggregating in value $1,753,917. Experiments in growing tobacco under shade have proved successful and very profitable.

The planting and cultivation of citrus fruits received a decided impetus during the year, and the industry has extended from the vicinity of San Juan—where inaugurated—to numerous localities throughout the island. Stress is laid upon the importance of this

industry as a source of public wealth and individual profit. It is predicted that fruit will, within a very few years, become the largest and most valuable item of export. It is estimated that at least 10,000 acres of land have been planted with fruit, hundreds more are being prepared, and thousands of trees have been contracted for.

The cultivation of sea-island cotton, a profitable industry in the island during our civil war, but subsequently discouraged and killed, is attracting attention. The product of this year's planting is, it is claimed, of fine quality, and interested parties are encouraging the farmers to plant largely with assurance of satisfactory profits.

The telegraph system has been somewhat extended, a few offices added, and the service is kept up to a high standard of efficiency. As an experiment in government ownership of the telegraph lines the progress in Porto Rico is interesting. The system has the confidence of the business community and is popular with all classes of citizens. It was taken over from the United States Signal Corps in 1901 under the belief that it would be a continuing source of expense. The report shows, however, that during the fiscal year 1902–3 the earnings, including official business, exceeded by $13,914.16 the total cost of operating and maintaining the system, and by $1,876.45 the amount expended for all purposes—salaries, new lines, reconstruction, maintenance, material, and incidentals.

The bureau of docks and harbors, organized July 1, 1902, promptly put in force the rules and regulations provided for the purpose. The rights of the shippers, as well as the interests of the Government, at the principal ports of the island have been carefully protected. Such slight friction as the revival of rules long dormant might be expected to create was quickly smoothed over, and the business of the bureau has gone steadily along. The collections for the fiscal year amounted to $25,362.68, of which amount the sum of $18,218.88 was expended for salaries, extensive repairs to the bulkhead at San Juan and the wharf at Mayaguez, the construction of a passenger wharf at Ponce Playa, the purchase of a steam launch for official use, and incidentals, leaving a balance of $7,143.80 in the insular treasury.

The report calls attention to the increase of commerce at the port of San Juan. During the last fiscal year 510 vessels, steam and sail, exclusive of numerous coasters, entered the harbor and remained an average of four days. The Bay of San Juan, while covering a considerable area, is so largely shallow, the channels so narrow, and the anchorage ground so restricted that the dredging of certain points and portions can not be longer delayed without serious inconvenience and detriment to the commercial interests of the island. Dredging is a matter of Federal control, and the Commissioner earnestly recommends that the attention of Congress be called to the subject to the end that a sufficient appropriation for the work may be considered.

The report states that the President having performed the duties imposed upon him by the act of Congress of date July 1, 1902, in reference to public lands and buildings in Porto Rico, the way now seems clear for the inauguration of a comprehensive survey of the island, the establishment of the boundaries of public and private lands, and the settlement of numerous questions concerning titles. The subject will be submitted to the legislative assembly for consideration.

In conclusion it is stated that in the selection of employees preference has been given to natives, and that of the force regularly employed in the several branches of the department of the interior, aggregating fully 1,200 persons, at least 95 per cent are native-born citizens of Porto Rico. The Commissioner pays high tribute to their loyalty, integrity, efficiency, and devotion to duty.

COMMISSIONER OF EDUCATION FOR PORTO RICO.—Section 25 of the act of Congress approved April 12, 1900, entitled "An act temporarily to provide revenues and a civil government for Porto Rico, and for other purposes," provides as follows:

> That the commissioner of education shall superintend public instruction throughout Porto Rico, and all disbursements on account thereof must be approved by him; and he shall perform such other duties as may be prescribed by law, and make such reports through the governor as may be required by the Commissioner of Education of the United States, which shall annually be transmitted to Congress.

The report of Dr. Samuel McCune Lindsay, the commissioner of education for Porto Rico, shows continued and gratifying progress in the schools on the island in all substantial particulars.

A summary is given of the legislation which established and regulates the present school system; together with a description of the method of school supervision, followed by an outline of conferences and teachers' gatherings held during the year. Noteworthy among the legislative enactments is one providing for a university for the island.

At the beginning of the scholastic year, October, 1902, there were 914 schools open, as contrasted with 780 the previous year. This number increased during the year, the maximum being 1,014 in April, 1903, while the year closed with 1,005, as against 874 schools at the end of the previous year. The average number of days each school was kept during the year was 171 out of a possible total of 180, the school year being thirty-six weeks of five school days each. These schools were housed in 717 buildings, averaging from four to eight schools or classes in one building. The rural schools, however, were each accommodated in a separate building.

In October, 1902, there were 996 teachers, as compared with 829 the previous year; in April, 1903, there were 1,106 teachers, compared with 933 the previous year, and in June, 1903, the close of the school year, the number was 1,097, compared with 933 the previous year.

The teachers were classified as follows: Forty-one principals, 378 graded teachers, 579 rural, and 99 teachers of English, the latter being Americans appointed by the Department and serving as visiting teachers in the graded schools. Of the Porto Rican teachers it is noticeable that there are two men to one woman, while the proportion is reversed among the Americans.

The population of the island in 1899 was 953,243, and the estimated population for 1903 is about 1,000,000, with an estimated school population of 377,200. The enrollment for 1903 was in all 70,216, or 19 per cent of the estimated school population and 7 per cent of the estimated total population. The percentage of colored pupils on the total enrollment is 28.

Besides the common schools there were 10 kindergarten schools, 44 night school classes, 6 industrial classes, 23 high school classes, and 2 practice school classes and 4 normal school classes during the year, with 134 teachers, making a total of 1,354 teachers in all schools. The total number of pupils enrolled in these special schools was 6,177. The average enrollment per school in the common schools was 46.26, the average daily attendance being 35.51, and the average number of days each school kept in each school month was 18.98 out of a possible total of twenty days.

Of the 75,572 pupils enrolled, 32,827 were white males and 21,707 white females, 12,399 were colored males and 8,639 colored females. The average number of pupils enrolled each month in the common schools was 44,657, and in all schools, including the special, 47,608. The average daily attendance in the common schools was 34,272, and in all schools 36,308. The percentage of attendance of the enrolled pupils in the common schools was 84, as compared with 79.7 the previous year.

The insular appropriation for all schools was $547,767.14, of which $545,105.67 was spent. Of this sum $25,711.11 was for administrative expenses; $452,867.44 was expended for salaries of teachers and superintendents. There was an additional expenditure of $6,760.48 for salaries of teachers in industrial schools; for text-books and school supplies $39,635.87 was expended. A special appropriation of $16,577.54 was made for industrial schools, making the expenditure for schools $561,683.21 from insular funds.

The municipalities throughout the island also expended for local purposes $149,916.96, which, with an appropriation of $14,864 for Porto Rican pupils in the United States and $1,037.62 for trained nurses, makes the total cost of the school system $727,502.43 for the year.

The insular government also expended $90,312.21 for the construction of school buildings. This amount did not come from the insular fund, but from trust funds refunded by the Government of the United

States from Porto Rican customs collected before free trade between the island and the United States was established by Congress.

The commissioner, in referring to the school accommodations provided, states:

> There were under construction at the close of the school year four 4-room brick buildings; one 6-room brick building; and an industrial school, which will be a 16-room brick building, known as the Roosevelt Industrial School, a 1-story building in Spanish Renaissance style, three sides of which are built around an open square or patio, with a corridor running the entire length of the three sides on the interior of the building, and the whole structure so constructed that a second story may be added later. The corner stone of this building, which, next to the Insular Normal School, represents the largest single expenditure that has yet been made upon school buildings on the island, was laid by Miss Alice Roosevelt on the occasion of her visit to Porto Rico during last winter. There are also projected eight additional frame rural schools, for which the department is at present trying to secure suitable land with good title, and brick and stone buildings for schools as follows: One 2-room, three 4-room, four 6-room, one 10-room, and one 12-room.
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> It must be remembered that Spain built no schools, and that when the American Government assumed charge there was but *one building* on the island owned and used by the public authorities for school purposes. All the other buildings were rented, and the present method, by which over 600 buildings are rented, is uneconomical as well as prejudicial to the best interests of the public schools. Often it is impossible to find buildings properly located for school purposes, and still harder to find buildings with rooms large enough for class work and in condition to be safe. Where such buildings are found it is often at very exorbitant rents that they can be secured by the local school authorities, and certainly in the larger towns it would be cheaper to borrow the money by issuing school bonds and paying for the building in a series of years than to continue the present policy.
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> The insular government has since January 1, 1901, when this work was begun, completed and turned over to the local school authorities in all forty-one school buildings. Seven more will be completed before the opening of the next school year, on October 1, and three more within one month after the opening of the school year, thus making fifty-one buildings with the title vested in the people of Porto Rico.

As a part of the general plan for instituting American culture and American educational ideas into Porto Rico the legislature two years ago made appropriations for maintaining 45 students in schools in the United States, the beneficiaries being required to sign agreements to return to Porto Rico at the expiration of their scholarships. It is stated that, in furtherance of this policy, 20 of these students—10 boys and 10 girls—are maintained at an expense of $250 each per year and were sent to the States for four years. Nearly all of them are at Tuskegee Normal and Industrial Institute, Tuskegee, Ala. The remaining students—25 in number, all young men—are allowed $400 each per year for a period of five years and are in attendance at various schools and colleges throughout the Northern States, 8 being in Pennsylvania, 4 in New Jersey, 3 in New York, 3 in Massachusetts, 2 in Connecticut, and 1 each in Indiana, Michigan, and Maryland.

Appended to the report are the annual statements of the chiefs of division of disbursements, school supervision and statistics, and school construction. Details are given covering all the expenditures and income of the entire school system, including the usual school statistics, together with those relating to the construction of schoolhouses. The reports of the school superintendents comprehensively present the conditions of the people and schools in each district, and show that the school accommodations are entirely inadequate for the school population, and that often the actual requests of parents and children for opportunities to attend school have to be refused. Many instances of sacrifice on the part both of pupils and teachers are cited, while pathetic instances of perseverance under abject proverty, amounting almost to starvation, to secure an education are reported.

INSPECTORS OF COAL MINES IN THE TERRITORIES.

By act of Congress approved March 3, 1891 (26 Stat. L., 1104), the President was authorized to appoint, at an annual compensation of $2,000 each, a mine inspector in each organized and unorganized Territory of the United States wherein were located coal mines the aggregate annual output of which would be in excess of 1,000 tons per annum. Appropriation is now made annually by Congress for two such inspectors, one of the Indian Territory and the other of the Territory of New Mexico.

INDIAN TERRITORY.—William Cameron, the mine inspector, reports that there has been a considerable increase in the production of coal in the Territory during the year.

Careful and thorough inspections have been made of each coal mine operated in the Territory, and, owing to accidents, fires, and other causes, it was necessary to make a number of visits to the same openings in many instances. Especial attention has been paid to the furnishing of the machinery and appliances necessary for proper ventilation and maintaining a sufficient quantity of pure air, in accordance with law, and in almost all cases the appliances required have been promptly supplied by the operators. A number of accidents, however, have occurred during the past year from gas explosions, there having been 53 accidents of this kind, 13 of which were fatal. Of these gas explosions, two were of considerable magnitude, one at Carbon, Ind. T., on April 13, 1903, by which 6 men were killed and 2 injured, and one at Buck, Ind. T., on April 16, 1903, by which 3 men were killed and 3 injured. Both these accidents, the inspector states, were caused by the carelessness of the fire boss and the violation of the rules of the coal company. In one instance the fire boss went with a naked lighted lamp into a place where gas might reasonably have been expected to exist, and in the other case the man forced

the gas out on the entry where he knew that a driver was passing with a naked lighted lamp, thus causing the second explosion. Most of the other accidents due to gas explosions were caused by inexperienced foreigners crossing over dead lines or disregarding instructions given them.

Careful and thorough inspection has been made of the machinery in use in the coal mines of the Territory, and from time to time suggestions in regard thereto have been made, which have generally been adopted by the operators. Special attention has been given to escapements, or proper means of ingress and egress, as required by law, and where it was found that such escapements had not been provided a demand for prompt action was made upon the company. In most instances this demand was complied with, but in two instances the inspector found it necessary to call the attention of the Department to the failure of operators to comply with the law.

Under Department instructions of July 10, 1902, the inspector reported on October 24, 1902, that the McAlester Coal Company, operating shaft No. 7, near Hartshorne, Ind. T., had failed to provide an additional shaft or slope, or any additional means of ingress and egress, as required by section 5 of the act of March 3, 1891.

A report was thereupon requested from the inspector as to the length of time it would take said company to provide the additional means of ingress and egress required by said section; and on November 10, 1902, the inspector recommended that said company be granted fifteen months from the time of resuming operations in shaft No. 7 in which to provide the improvements indicated. On December 6, 1902, a notice was addressed to said company, through the mine inspector, requiring it, within fifteen months from the time operations were resumed on shaft No. 7, to provide such proper and adequate additional means of ingress and egress in connection with the shaft in question as should, in the judgment of the Department, fully comply with the requirements of the statute. It was also suggested that in order to minimize the danger to persons employed in said shaft pending the improvements directed, a fire engine or pump, with a sufficient quantity of hose directed to various points of the top works of the shaft, be provided, and that a competent man be kept on guard at all times to extinguish any fire that might arise; all work to be done under the supervision and to the satisfaction of the mine inspector. Service of this notice was duly acknowledged by the superintendent of the McAlester Coal Company December 13, 1902.

On October 24, 1902, the mine inspector reported that the McAlester Coal Mining Company had failed to supply any additional means of ingress and egress in connection with their shaft No. 6, at Buck, Ind. T., as required by section 5 of the act of March 3, 1891. The inspector was requested to report as to the time it would take said company to

provide the additional means of ingress and egress called for by said act; and on November 10, 1902, the inspector reported that in his judgment ten months would be sufficient time for the company to provide the improvements in question. On December 6, 1902, a notice similar to that above described was directed to the McAlester Coal Mining Company, requiring it within ten months from the date of receipt of the same to provide proper and adequate means of ingress and egress in connection with shaft No. 6, and also suggesting that pending the improvements called for a fire engine or pump and a competent guard at the top of the shaft be provided. Service of this notice was duly acknowledged December 13, 1902, by the superintendent of the McAlester Coal Mining Company.

Machinery and appliances for providing adequate ventilation are in use in all the coal mines of Indian Territory. There has been at times, however, a lack of care on the part of persons in charge of underground work to conduct the air in sufficient quantities to the working faces, and in some instances this lack of care was reported by the miners in the shaft. Prompt steps were taken in every case to remedy the defect and insure a sufficient quantity of air at the working faces. There are but few mines in the Territory where furnaces are used for ventilation, nearly all of the mines being supplied by fans of adequate size and capacity; but wherever such furnaces are in use other means of escape for the men are provided.

All the shafts in the Territory have been provided with metal speaking tubes; but in some of the slopes which have been driven long distances the use of a speaking tube has been found entirely impracticable, and in many cases a telephone has been installed, by which conversation can be had without difficulty.

Safety cushions and covers for cages of approved pattern are provided and have been regularly inspected. No accident has occurred due to any fault of these appliances.

Occasional instances have been found where children under the age of 12 have been employed without the knowledge of the operators, and in every such case the children have been sent home.

The engineers and others in charge of engines and machinery in the Territory are of the highest type. They are experienced, temperate, and efficient, and there has been no accident due to negligence on their part during the year.

Free access for the purposes of inspection has been at all times afforded by the mine operators. Copies of the act of July 1, 1902 (32 Stat. L., 631), amending the act of March 3, 1891, for the protection of the lives of miners in the Territories, were sent to all the mine owners, operators, and superintendents in the Indian Territory, accompanied in each case by a letter requesting their compliance with the law. As a result of this, shot firers are now employed in all mines in which

more than 20 miners are employed. The increased amount of ventilation required by the amendment has also been furnished in every instance.

The total number of accidents during the year was 166, of which 33 were fatal. This was a reduction of 33 from the number during the preceding year—27 fatal and 6 nonfatal.

The total number of men and boys employed in the Indian Territory for the current year was as follows:

Average number of men and boys over 16 underground	4,820
Average number of boys under 16 underground	195
Average number of men and boys over 16 above ground	1,007
Average number of boys under 16 above ground	69
Total	6,091

During the preceding year there were 6,234 men and boys employed, thus showing a decrease of 143 for the current year. As the production of coal and coke in the Territory has been greatly increased during the year, it would seem that this reduction in the number of men and boys employed calls for some explanation, and this may be found in the following statement: In the first place, it is doubtless true that the quality of the skilled labor employed during the current year has been better than that of the preceding year, and this may be due to some extent to the fact that the unskilled labor which had been imported into the Territory had by experience become more efficient in working the mines of the district, which are of such a nature that they can be properly worked only by miners of experience. A second cause may be found in the fact that while the railroad companies have not furnished cars in sufficient quantities to transport all the coal that might have been mined, yet the conditions in this respect have doubtless been improved over those for the previous year. A third, and perhaps the leading, cause for the increased production per man is doubtless found in the fact that the demand for coal has not only been greater, but of a steadier character, during the whole year.

The production of coal for the year was 3,243,692 tons, while the output for the year ended June 30, 1902, was 2,741,797 tons, showing an increase of more than 500,000 tons. The number of mine openings for the preceding year was 130; the number of openings for the current year was 120, showing a decrease of 10. While there have been some 11 new openings made during the year, a number of smaller slopes and openings producing but little coal have been abandoned. There have been one or two instances, however, where the abandonment of larger producing mines has been necessary on account of the distance to which the coal would have to be hauled to the shaft openings.

The output of coke for the year just past was 52,625 tons; that of the previous year was 49,279, showing an increase of 3,346 tons.

The average selling price of coal at the mines was $1.79 per ton. The total estimated value of the coal mined in the Territory during the year is $5,371,146; the value for the preceding year was $4,141,368, thus showing an increase in value of $1,229,778.

The average selling price of coke during the year was $4.15 per ton, and the estimated value of the output for the year was $218,498.

The threatened competition of Texas oil has not proved a factor in the demand for coal during the past year, the demand having continued good during the whole period.

Appended to the report is a detailed statement of the various accidents and the causes thereof. There are also printed with the report copies of the act of March 3, 1891, for the protection of the lives of miners in the Territories, and the act of July 1, 1902, amendatory thereof, together with decisions of the Department construing the said acts.

It appears that at the time of the passage of the so-called Curtis Act of June 28, 1898 (30 Stat. L., 495), making certain laws in force in the State of Arkansas contained in Mansfield's Digest of the Statutes of Arkansas applicable to the Indian Territory, there was no law in Arkansas providing for the protection of miners or regulating the employment of minors in the mines of that State. Since that time, however, by act of April 4, 1893 (sec. 5051, Digest of the Statutes of Arkansas, Sandels and Hill, 1894), it is provided that —

> No person under the age of fourteen years, or female of any age, shall be permitted to enter any mine to work therein; nor shall any boy under the age of sixteen years, unless he can read and write, be allowed to work in any mine; and no owner, agent, or operator of any mine operated by a shaft or slope shall place in charge on any engine, whereby men are lowered into or hoisted out of the mines, any but an experienced, competent, and sober person not under eighteen years of age; and no person shall be permitted to ride upon a loaded cage or wagon used for hoisting purposes in any shaft or slope except persons employed for that purpose, and in no case shall more than eight persons ride in any cage or car at any one time; nor shall any coal be hoisted out of any mine while any person or persons are descending into such mine, and in no case shall more than one of the same family ascend or descend on a cage, and not more than eight persons ascend out of or descend into any mine on one cage at one time, nor shall they be lowered or hoisted more rapidly than five hundred feet to the minute.

It is therefore recommended that the section of the Arkansas law above cited be extended over and made applicable to the Indian Territory.

NEW MEXICO. Jo E. Sheridan, the mine inspector, reports that the requirements of the acts of Congress providing for the protection of the lives of miners have been strictly enforced, and that the principal operators have rendered prompt assistance in carrying out the provi-

sions of the law. In one instance, however, the inspector found it necessary to invoke the aid of the courts and secure an injunction restraining the operation of one of the smaller mines until it was put in safe condition.

The coal-mining industry in New Mexico has been very prosperous during the past year, and the prospects for the future are very bright. New coal fields have been opened, and many thousands of acres have been purchased from the Government, and all these lands will soon be developed into producing coal mines. Many large and substantial plants have been built and equipped with modern machinery, and many improvements made in the shape of schoolhouses, dwellings, and other buildings for the accommodation of the miners. Two mines were abandoned during the year, three new mines were put in operation, and several new prospect shafts were opened, which merely need development in order to become producing mines.

In connection with the coal-mining industry, one railroad 168 miles in length, built especially for transportation of coal from the Dawson field, was completed and put in operation; and another road, the Santa Fe Central, is now being built and will open another large producing field.

Coal has again been used for fuel in nearly all the places in Texas, Mexico, and New Mexico, where the oil of the Beaumont fields had replaced it a year ago, and there is consequently an increased demand for the product of the mines of the Territory.

The production of coal during the fiscal year ended June 30, 1902, was 1,359,530 tons, with an estimated value of $1,795,208. This is an increase of 227,192 tons, or 19.99 per cent over the preceding year. It is believed that the next fiscal year will show a still greater rate of increase in production, as a large number of men have been employed during the year in the development of new mines which will eventually become very productive.

The production of coke amounted to 26,353 tons, valued at $74,919 at the ovens.

Lack of proper transportation facilities during the first six months of the year greatly retarded the production of coal and coke in the Territory, the scarcity of cars being so great that some of the mining and smelting companies found it necessary to employ men to gather empty cars from stations along the railroads in the vicinity of the mines.

There have been comparatively few labor troubles at the mines, and those that have occurred have been amicably settled, and every mine in the Territory is now operating with nearly a full force of miners. There is a scarcity of miners throughout the coal fields of the West, and the shortage in New Mexico is no greater in proportion than elsewhere.

There were 2,232 men and 109 boys employed at the mines during the past year, as against 1,611 men and 72 boys employed during the preceding year.

Seventeen fatal accidents occurred, an average of one life lost for every 79,792.35 tons of coal mined.

The inspector again calls attention to the necessity of adopting measures to eliminate the probability of coal-dust explosions, which are now of such frequent occurrence in all of the Central, Southern, and Western coal-producing States, as well as in the mines of the Territory. He suggests that this danger is so general, and the loss of life from this cause has been so great, that the adoption of effective measures to counteract the danger is well worthy the attention of the Federal Government. He recommends that a commission of experts in the manufacture of explosives be appointed, for the purpose of experimenting with a view to producing a flameless explosive for use in coal mines -some explosive which would prove safe and convenient in use, and which could be manufactured at reasonable cost. With the same end in view he recommends that restrictions be placed upon miners in regard to "shooting off the solid," or shooting coal without any preparatory coal cutting or undermining, whereby the force of the explosion is projected in the direction of the mouth of the drill hole, thus frequently producing a blown out shot, to which cause a majority of the dust explosions can be attributed.

Close and constant supervision of all the coal mines in operation in the Territory has been maintained to see that the requirements of the act of March 3, 1891, were observed. The air entering and traveling through the mines has been carefully measured and followed to the several working faces to see that it was properly distributed and traveling with sufficient velocity and volume. Old gobs, which might give vent to noxious gases, have been carefully examined, and, where necessary, stoppings built to cut off connection with the portions of the mine in active operation.

Especial efforts were made to obviate the danger from explosions due to coal dust, and specific instructions on the subject were issued to all mine officials. Safety lamps in use at gaseous mines were carefully examined, and all machinery, cars, cables, etc., regularly inspected.

The inspector again directs attention to the desirability of having made a geological survey of the Territory for the purpose or identifying more accurately the coal-bearing areas, and states that such survey would also be of great utility to the operators in metalliferous mining.

The inspector recommends that section 10 of the act of March 3, 1891, which provides that a metal speaking tube shall be provided in all shafts or slopes, be so amended as to permit the operators at their option to provide telephonic communication instead. In this way, he

states, the real purpose of the section will be carried out with more certainty than at present.

The inspector also renews his recommendation that the law be amended so as to make the miner as well as the operator responsible for dereliction of duty whereby his own safety or that of fellow-workmen may be imperiled.

NATIONAL PARKS AND RESERVATIONS.

The Yellowstone National Park.

The Yellowstone National Park, set aside by act of March 1, 1872 (17 Stat. L., 32), is located in the States of Montana and Wyoming, and has an area of 2,142,720 acres. The average altitude is about 8,000 feet.

Maj. John Pitcher, Sixth Cavalry, U. S. Army, acting superintendent, reports that the Northern Pacific Railway Company has completed the extension of its road, and its terminus is now at Gardiner, only 5 miles distant from the Mammoth Hot Springs. The completion of this road and the building of a handsome depot has greatly added to the comfort and convenience of tourists entering the park.

Until the present season there has been nothing to indicate to tourists entering the park from the north when they had crossed the boundary line, or actually entered the park, but now soon after leaving the depot they pass through a stone archway, or gate, which indicates to them at once that they are within the bounds of the park. The corner stone of this arch was laid April 24, 1903, by the President, who was visiting the park.

In connection with this gateway a wire fence has been constructed, which extends about 4 miles along the northern boundary of the park. This fence protects the park from stock in the vicinity of Gardiner and Cinnabar, thereby preserving for the antelope, deer, and elk the grass they need in the winter.

The roads and cement sidewalks about the springs have been completed, and grass and clover grown on that portion of the plateau, which gives hopes of a handsome lawn. The house and barn of F. J. Haynes, which stood near the center of the plateau, has been removed to the foot of Capitol Hill, and the result is a great improvement in the appearance of the plateau.

The United States Fish Commission have constructed a small frame and log building at the west thumb of the lake for the purpose of eyeing the eggs of the black-spotted trout. Mr. Booth, superintendent of the United States hatchery at Spearfish, S. Dak., succeeded in collecting and hatching several million of these eggs, which were sent to his station to be distributed to various points throughout the United States and some places in Europe. In exchange for these Mr. Booth

brought from his station 35,000 brook trout, which were planted in Tower Creek and in Upper Gardiner River, and 10,000 Loch Leven trout, which were planted in Nez Perce Creek.

A handsome frame building has been completed by the Weather Bureau and a representative of the Bureau is engaged in establishing his station.

During the year 50 miles of the eastern boundary line of the park was surveyed by Edward F. Stahle under contract. This survey was commenced at a monument established by Captain Bromwell, which was reported to have been established at a point 10 miles east of the easternmost point of the Yellowstone Lake; but it was found that this monument was about 4½ miles south of that point, and in consequence the survey of 50 miles of the boundary line northward from this point only reached to a point about east of the head of Amphitheater Creek and nearly 4½ miles south of the north boundary line of the park. In addition to this fact, it was found that the northeast corner of the park, as fixed by United States Deputy Surveyor Gallaher, was about 1 mile west of its proper location. It therefore became necessary to survey about 1 mile of the northern boundary of the park in order to accurately fix the location of the monument at the northeastern corner.

The examiner of surveys of the General Land Office, J. Scott Harrison, was assigned to the work of making this additional survey. This was fully completed in October of 1903 and finishes the survey of the entire boundary of the park. As a result of these several surveys a new and more accurate map of the park boundaries will be prepared during the ensuing year. In addition to being surveyed, the superintendent urges that provision be made by Congress for marking the boundary line, so as to render it impossible for anyone to cross the line without knowing he is within the reservation; this, he states, can be accomplished by setting up additional monuments and by cutting a wide swath along the boundary line where there is timber. I concur in his recommendation.

The past winter proved to be a favorable one for the various kinds of game that live entirely within the limits of the park, and the percentage of loss through starvation and the effect of the weather was small. The grazing of sheep on the timber reserve and its destructive effect increases the danger of starvation during the winter of the large game.

About 300 antelope have already been seen this fall on the northern slope of Mount Everts and near the town of Gardiner, and in the park there are about 1,000.

The mountain sheep have begun to come back to their winter range on Mount Everts. A number have already been seen. They have increased considerably in numbers during the past year, and there are now over 100 in the park.

The bear seem to be about as numerous as last year and can always be seen about the various hotels, and continue to be a source of great amusement and interest to the tourists. They have harmed no one during the past season.

The deer seem to be increasing more rapidly than any other game in the park. They are more fearless than any other species, and during the past winter from 50 to 75 could be seen any day grazing on the parade ground of Fort Yellowstone.

The new buffalo herd is doing exceedingly well. It consists of 27 buffaloes—20 old ones and 7 calves. Two of these calves were captured from the wild herd of the park. The addition of these calves from the wild herd gives three distinct strains of blood in the new herd, as some of the buffaloes were from the Goodnight herd, Texas, and others from the Allard herd of Montana. Including the herd of 22 wild buffaloes, there are now 49 buffaloes or bison in the park.

The advisability has been discussed very fully in prior reports of extending the boundaries of the Yellowstone National Park so as to include portions of the forest reservations on the east and south of the park as the best means of affording protection to the large game therein, particularly during the winter season. The importance of this subject is such that I deem it my duty to again direct attention to the matter and to urge the early enactment by Congress of the necessary legislation. The steps heretofore taken looking to legislative action in the matter are fully set forth in the reports of the Secretary of the Interior for the years 1898, 1899, 1900, 1901, and 1902, wherein, among other things, it is stated:

Under date of February 1, 1898, there was transmitted to Congress a report made on the 12th of January, 1898, by Col. S. B. M. Young, Third U. S. Cavalry, then acting superintendent of the park, recommending the extension of the limits of the park, and submitting a draft of a bill with a view to carrying the same into effect.

The boundaries as suggested in said bill, which are indicated on a map accompanying the same, would extend the limits of the park so as to embrace the Yellowstone Timberland Reserve, which lies on the east and south boundaries of the park, and comprises about 1,914 square miles; all that portion of the Teton Forest Reserve lying east of the summit of the Teton Range and comprising about 1,050 square miles, and adjoining the Yellowstone Timberland Reserve on the south, together with an unreserved area of about 30 square miles at the southwest corner of the park, in Idaho, and an unreserved area of about 260 square miles at the northwest corner, in Montana.

In the forest reserves are fine bodies of timber which it is important should be preserved from fires because of its value as timber, as well as the protection to watersheds and against fires running into the park.

It is reported that during the winter months the large game from the National Park herd roam to a very considerable extent in the areas proposed to be included within the park, and they should have all protection possible from destruction by marauders, who are constantly on the watch for game as it roams out of the park limits. The State game laws are applicable to the forest reserves, and for this reason it is impracticable to prevent the killing of game in the reserves in the same manner and to the same extent as it is prohibited in the park. The superior discipline of

regular troops makes a more effective patrol than the civil forest officers, and cavalry can cover a greater extent of territory with more expedition and is better able to cope with trespassers than are forest rangers.

In view of the importance of protecting this country, which has an international reputation on account of its scenic beauties, and to throw additional safeguards about the big game whose natural home is the National Park, and to protect more effectually the timber embraced in the forest reserves adjoining the park, I think it a wise policy that the additional areas herein described be embraced in and placed under the laws and management relating to the Yellowstone National Park.

On March 18, 1902, I transmitted to Congress (H. Doc. 500, 57th Cong., 1st sess.) papers tending to show that the large game —moose, elk, deer, antelope, mountain sheep, etc. —which have their summer range within the Yellowstone National Park, drift out of that reservation in the fall, seeking a winter range for food, into the forest reservations abutting the park on the south and east, and that while in that country the animals are ruthlessly killed in large numbers by pot hunters and others for their heads, teeth, pelts, and meat; and transmitted a form of bill providing for the extension of the limits of the Yellowstone National Park so as to include the above-mentioned forest reservations.

The Yellowstone National Park Transportation Company, bringing in tourists from the northern entrance of the park, has further increased its plant as to coaches and horses, and the service rendered has been very satisfactory. Messrs. Humphrey & Haynes, conducting the Monida stage line from the western entrance of the reservation, have also improved their equipment and given entire satisfaction in the matter of transportation.

The services rendered by W. W. Wylie, under his license to transport passengers and maintain permanent camps in the park, have been in every way satisfactory to his patrons.

The Yellowstone Park Association, which under contract maintains the hotels in the park, has greatly improved its plant, and its hotels and lunch stations have never been better conducted. A new hotel is being built at Upper Geyser Basin and will be ready for occupancy next season. A new lunch station at the Thumb has been in use during the greater part of the season. The hotel at the lake has been improved and its capacity doubled.

The total number of visitors to the park during the season was 13,165. The aggregate number carried over the regular route by the Yellowstone National Park Transportation Company was 4,363; by Messrs. Humphrey & Haynes, 1,346; the aggregate traveling with licensed transportation, 2,381; aggregate number carried by private transportation, 4,829.

During the season 3,598 tourists took the trip across the Yellowstone Lake with the Yellowstone Lake Boat Company. Of this number, 1,527 entered the park with the Yellowstone Park Transportation

Company, 253 with Messrs. Humphrey & Haynes, 1,690 with W. W. Wylie, and the balance, 128 people, were campers.

Embodied in the report is a letter from Capt. H. M. Chittenden, U. S. Engineers, in charge of roads and improvements in the park, which shows the work accomplished under his direction during the year, as follows:

MAMMOTH HOT SPRINGS TO GARDINER.—Nearly entire distance of 5 miles regraded, widened most of the way to 25 feet; all grades reduced to within 8 per cent; over one-half mile retaining wall built; three-fourths mile entirely new road built, entire distance of 5 miles resurfaced, about one-half mile being with crushed rock and the rest with gravel.

NORTH ENTRANCE.—Entrance gate of columnar basalt built near the new station of the Northern Pacific, with wing walls extending from gate to boundary. Small park laid out within loop at terminus of Government road. Park fenced with pipe fence, supported by turned cedar posts. Park ornamented with small pond provided with running water. Park to be seeded and planted with trees next spring. Road from entrance arch to the bluffs of the Gardiner River newly built over an even plain, which is to be planted with shrubbery on both sides. To provide water a large ditch was brought from the Gardiner River about a mile distant. It was carried in a substantial flume along that portion of the roadway which is built on the side of a steep, gravelly bluff about half a mile above the entrance gate.

MOUNT WASHBURN ROAD.—Work has been done on both sides of the mountain. The loop road is open on the south side for a mile and a half beyond the junction of the loop and main line in Dunraven Pass, making in all about 9 miles from the Canyon Hotel. On the north side the road is open nearly to the junction of the loop and main line. This leaves practically the work between the two junction points to open up. The work in the vicinity of the high cliff near Tower Falls was of a very heavy character.

EAST ROAD.—This road was open for travel about July 10 and was used by the public the balance of the season. It is nearly 60 miles long, and a considerable portion of the distance was through the roughest and most difficult country on the road system.

GIBBON CANYON.—The high retaining wall near Gibbon Falls was entirely rebuilt in a very substantial way. It is about half a mile long, and is a permanent improvement of a piece of road that has always given much difficulty.

In the upper part of Gibbon Canyon two remaining hills have been cut out by grades along the river about half a mile long each.

VIRGINIA CASCADE.—This work, commenced last fall, was added to this spring and placed in a condition for travel during the summer. It still requires widening and a guard wall on the outside.

GRAND CANYON.—A new junction of the Lake road, Norris road, and Mount Washburn road was located about 1,000 feet from the old junction; a new crossing of Cascade Creek was located and roads opened to correspond. The work eliminates two bad hills and a sliding slope which it had been found impossible to hold.

MAMMOTH HOT SPRINGS TO MIDDLE GARDINER.—About 1½ miles of road have been built to replace the old wagon trail between these points. An excellent line was found, shortening the old distance by fully one-third and eliminating nearly all gradients above 3 or 4 per cent.

BRIDGES.—Material has been purchased and delivered for nine bridges, four of which have been erected. These include the steel-concrete bridge over the Yellowstone above the Upper Falls—an arch of 120 feet span and a length of 160 feet, including the abutments—the steel arch bridge over Cascade Creek, with a span of

120 feet and a total length of 220 feet, the deck steel truss over the Yellowstone at Yancey's, 130-foot span, and a small steel bridge over the Gibbon River, in Gibbon Canyon.

CULVERTS.—A large number of vitrified clay pipe culverts have been put in in various places, the more important being at Glen Creek and Swan Lake Creek crossings, where bridges have been replaced by culverts.

SPRINKLING.—Ten new sprinkling wagons of 850 gallons capacity each were purchased. The installation of filling tanks was kept up all summer. It was found to be a matter of very great difficulty to get water in the right places in sufficient quantity. Sprinkling was kept up nearly all summer on the 25 miles from Gardiner to Norris. On the Yellowstone River road sprinkling began about August 10 and continued until about the 6th of September. It began about August 15 from Norris down the Gibbon River for 10 miles. Filling tanks are now installed nearly to the Upper Basin, and it is certain that not less than 75 miles of road will be sprinkled next season. The experience of the past season has shown that a complete sprinkling system can be combined with road maintenance in a way to produce excellent results, both for the comfort of the traveling public and the preservation of the roads.

OPENING AND REPAIRING THE ROADS.—A very large expenditure has been made under this head during the past year. The roads were opened earlier than they should have been, and the amount of snow shoveling was prodigious. A large amount of gravel and other surfacing material was hauled onto the roads in all parts of the park. Parties were sent over both the south and west roads and the road to Cooke City. The Natural Bridge cut-off was widened in numerous places. The new road over Swan Lake Flat was widened and the ditches partially filled on one side to reduce danger from accidentally getting off the road.

BUILDINGS, ETC.—The new engineer office and the storehouses, sheds, etc., pertaining to the improvement work have been completed; the station houses throughout the park are being repaired; a new station house and stable will be built at Gardiner before the end of the year; about 4 miles of substantial fence was built along the north boundary in the vicinity of Gardiner.

Estimates for the park for the ensuing fiscal year have been submitted to Congress for an appropriation of $30,540, $13,840 to be used in the management and protection of the reservation and $16,700 for the purchase of additional buffalo and their care.

YOSEMITE NATIONAL PARK.

This park is situated in Tuolumne, Mariposa, and Mono counties, Cal., and covers an area of about 1,512 square miles, being 36 miles wide and about 42 miles long. The lands embraced therein were set aside by act of Congress approved October 1, 1890 (26 Stat. L., 650), and were placed under the supervision of the Secretary of the Interior.

Lieut. Col. Joseph Garrard, Fourteenth Cavalry, U. S. Army, acting superintendent, reports that he entered on the discharge of his duties May 14, 1903, having under his command Troops K and L of the Ninth Cavalry; that the latter, consisting of 4 officers and 103 enlisted men, marched from San Francisco—a distance of 279 miles—in 13 days, arriving at the reservation May 7, 1903. From about the middle of October, 1902, until the arrival of the troops, the reservation was in charge of forest rangers Britten, Leidig, and Leonard.

The main camp was established on the site occupied by troops during previous seasons, about 1 mile west of Wawona. This site, however, experience has shown to be decidedly too limited for the purposes for which desired, and it is recommended that in the future the main camp be established in the vicinity of Ackerson Meadows and the junction of the Tioga and Yosemite Valley roads. Subsequently subposts, each consisting of 1 commissioned officer and from 3 to 9 privates, were established at the following points: Jerseydale, Little Jackass, Agnews, Lamberts Soda Spring (Tuolumne Meadows), Return Creek (in Hetch Hetchy Valley), Crockers (Sequoia), and at Buck Camp. Permanent patrolling stations were also established at various points in the reservation, with from 4 to 6 men each, changed monthly. As a result of the carrying out of this plan of operations the park has been more thoroughly patrolled and guarded than in any previous season.

All persons entering the park were required to give up their firearms, or when they desired to leave the reservation by another road, the arms were sealed and delivered to the owners with a permit to carry the sealed weapons through the park. Forty-seven rifles, 36 shotguns, and 15 revolvers were taken up and afterwards returned to the owners at their expense, when claimed, on or after departure from the park. Only the sergeants and corporals were allowed to carry their carbines, the privates being armed with revolvers. No complaint has been made this season, as heretofore, relative to the killing or catching of game by the troops.

Near the post established at Jerseydale is a large area of patented land within the park. Nearly every proprietor keeps more cattle than he can feed on his own ranch, and there was a tendency to violate the regulations by turning their stock loose to graze at will. The detachment commander was instructed to patrol the Sweetwater Mountains and notify cattle owners when their stock was found on the reservation. When notified the owners invariably removed their stock from the park.

Only one band of sheep, numbering 2,000, have been found some distance inside the boundaries, though it is believed that over 100,000 have grazed up to the park limits and several bands have gotten inside a short distance. The herd found well within the park were in charge of the owner and three herders, with a complete outfit of horses, mules, and camp equipage. The owner was brought to the camp and detained to await instructions from the Secretary of the Interior, but before orders arrived to put the sheep off the park his herders with the sheep had scattered and gone beyond the limits at different places. Other owners, when warned, kept their stock away. A total of 14,900 sheep were removed from the outer edges of the park during the season. The utmost vigilance and constant patrolling was necessary to

prevent the reservation from being overrun with sheep the past season, which was extremely dry. Except in the vicinity of Jerseydale, cattle caused little trouble. One thousand five hundred and thirty-two head were removed from the park.

Regarding the game and fish, the superintendent states:

No evidence of the destruction of any game or fish was found. In my opinion, the amount of game within the park is not as great as is generally supposed. The animals leave the higher altitudes as soon as the snow comes, and in the lowlands and meadows about the park fall easy prey to the hunter. There is a good supply of fish in the streams and lakes, and every year a great many are caught with hook and line; consequently the supply must be replenished from time to time. The distribution of rainbow and cutthroat trout from the Wawona hatchery during 1903 amounted to about 250,000 in the main streams and tributaries of Bridal Veil Creek, Merced River, and Ostrander Lake.

There were 10 forest fires within the limits of the reservation, only two being of any magnitude. They were caused by the carelessness of campers, except in three instances; the largest fire south and east of Mount Starr King, a fire near Jerseydale, which was reported to be of incendiary origin, and one caused by lightning on Wawona Dome. While there have been extensive fires, the prompt action of the troops has prevented any serious damage being done to the forests.

Travel through the park has been considerably greater than in any previous year; a conservative estimate of the total number of tourists passing through the reservation during the season would be 9,500.

The superintendent states that the fact that toll is demanded of the ordinary visitor on all the roads now in use which lead through the park and to the Yosemite Valley is very objectionable. Some of the roads are in bad condition, the corporations owning and operating them only making sufficient repairs to prevent forfeiture of their charters.

In the sundry civil appropriation act, approved March 3, 1899 (30 Stat. L., 1100), provision is made for the appointment, by the Secretary of War, of three commissioners—one from the Engineer Corps and one from the officers of the Regular Army of the United States, to act without compensation, and the third a civil engineer and member of the department of highways of the State of California, to be paid his actual expenses—to act as a commission to examine and determine the lengths, widths, elevations, grades, conditions, ownership, cost of construction, present values and annual cost of maintenance, rates and tolls charged, annual tolls collected, and the length of the season open to travel, and actual travel of the public over certain toll roads therein described, etc., and to make report as to the result of such investigation to this Department.

The commission appointed by the Secretary of War, pursuant to this authority, submitted a report in December, 1899, which has been printed by order of the Senate as Senate Document, No. 155, Fifty-sixth

Congress, first session. From this it appears that there are four toll roads built under the laws of California, and owned by individuals and corporations, leading into the Yosemite National Park, three of which find their termini in the Yosemite Valley grant, which is within the national park, as follows: (1) The Big Oak Flat road, 19.03 miles of which are within the park, the original cost of construction was approximately $40,000; (2) the Coulterville road, 24.26 miles of which are in the park, the original cost of construction being approximately $75,000; (3) the Wawona road, 25½ miles of which are in the park, the original cost of construction being approximately $76,750, and (4) the Tioga road, 51 miles of which are within the limits of the park, the original cost of construction being approximately $62,000. The commission estimated, at the time of the rendition of its report, that it would be practicable to construct the Big Oak Flat road for $30,000, the Coulterville road for $50,000, the Wawona road for $70,750, including bridges, and the Tioga road for $58,000.

In discussing generally the matter of roads in this reservation the commission states:

> At the present time, although this is a public park, an embargo has been laid upon travel, in that all who wish to visit it must pay tribute in the way of tolls to the owners of the roads. It would appear that if the park is a free one for the people, access to it should also be free. This can be accomplished by the Government, and it would seem to be its duty either to purchase the existing roads or to construct new free roads. It would not appear, however, to be just for the Government to construct a new road without making compensation for the existing roads, in that the construction of a new road, free of tolls, would mean the diversion of all the travel from the toll roads to the free road, which would be practically a confiscation of the toll roads. In addition to this, it would appear exceedingly advantageous for the Government to own all the roads within the park, for in this way only can entry into the park be controlled.
>
> Moreover, the lands within the Yosemite National Park having been excepted from entry, the value of the toll roads has been depreciated, and through no fault of their owners; and inasmuch as this large area has been withdrawn from settlement or utilization in any manner save as a park, it would be only right that it be made a park in fact as well as in name.
>
> Furthermore, while the existing roads are necessary for patrolling the park by the troops guarding it, still the means of communication are extremely inadequate. Again, the cost of transportation of supplies to the troops now carried on by means of pack trains could be lessened to a great extent, and fires, which are a constant menace to the park, could be more readily extinguished were additional roads built, and the Secretary of the Interior would have better means to carry out the regulations for the government of the park.
>
> By making free all these existing roads and the construction of new ones as suggested, all portions of the park could be easily reached. Following along the Tioga road a series of lakes and streams are passed that are unequaled for fishing. The scenery is particularly grand, and there are found here a number of mineral springs which are equal to any of the famed springs of the country.

The attention of Congress has heretofore been called to the matter of the purchase of toll roads in this reservation with a view to making

travel over the same free, but as no action has been taken by that body in the premises I again direct attention to the matter with a view to the enactment of such legislation as the facts presented may warrant.

The superintendent reports that it was impracticable for him to comply with the Department's instructions to ascertain the metes and bounds of patented lands in the reservation, and through examination by a competent individual determine the value of such land and the timber thereon, etc., as it would take a good surveyor and competent corps of assistants several months, if not a year, to properly perform the work. He further states that—

> I do not recommend the cutting off of one acre of the park. I have already referred in a special report to the devastation of the magnificent forest between the southern boundaries of the reservation and Awahnee by the Sugar Pine Lumber Company, and I repeat my recommendation that the Government take steps to obtain immediate possession of all patented lands in the forest reserve as well as in the park. From personal investigation I am decidedly of the opinion that the Government should not even go to the expense of surveying these lands, but should use the list as given by the recorder and receiver, United States land office, Stockton, Cal., as a basis for their purchase. They are inside of the park, and their purchase at the rate of $10 per acre, the usual market value, would be a source of financial profit to every individual interested, when we consider money actually expended in getting possession and paying taxes and such other necessary expenses since the original entries.
>
> The mining claims are few, and it is not believed they will ever materially endanger the interests of the park. This can not be said of the timber claims, which we consider a menace to the park, as wealthy milling corporations are buying them, generally paying less than $10 per acre, and when they get in their devastating work the natural beauties of the forest and the purposes for which this park was created will be materially affected.

Appended to the report is a list of patented lands, procured from the local land office. A computation made from the data therein contained shows that approximately 300 entries of land in the park have been patented to various individuals with but little variation in tracts of 160 acres each, and covering in all, approximately, 46,939.78 acres. Apparently none of these lands cost the purchaser over $2.50 an acre, and many of them only $1.25 per acre, the total amount of such purchase money being $111,547.76. The average cost of all the lands to the purchaser was approximately $2.37⅞ per acre.

I concur in the conclusions of the acting superintendent that the best interests of the park clearly demand the elimination of all private holdings therefrom, and I most earnestly reiterate the recommendations contained in previous annual reports that Congress appropriate sufficient money to provide for the purchase of these patented lands, or if this is not deemed advisable, that it extend to the national parks in California so much of the act of Congress approved June 4, 1897, as permits the relinquishment by the owners of tracts of land in the several forest reservations and the selection in lieu thereof of vacant lands in other localities which are open to settlement. Appended

hereto (p. 286, Exhibit L) is a form of bill which would carry into effect this latter recommendation.

On the 15th of February, 1901, an act of Congress was approved entitled "An act relating to rights of way through certain parks, reservations, and other public lands" (30 Stats. L., 790) in the following terms, to wit:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior be, and hereby is, authorized and empowered, under general regulations to be fixed by him, to permit the use of rights of way through the public lands, forest and other reservations of the United States, and the Yosemite, Sequoia, and General Grant national parks, California, for electrical plants, poles, and lines for the generation and distribution of electrical power, and for telephone and telegraph purposes, and for canals, ditches, pipes and pipe lines; flumes, tunnels, or other water conduits, and for water plants, dams, and reservoirs used to promote irrigation or mining or quarrying, or the manufacturing or cutting of timber or lumber, or the supplying of water for domestic, public, or any other beneficial uses to the extent of the ground occupied by such canals, ditches, flumes, tunnels, reservoirs, or other water conduits or water plants, or electrical or other works permitted hereunder, and not to exceed fifty feet on each side of the marginal limits thereof, or not to exceed fifty feet on each side of the center line of such pipes and pipe lines, electrical, telegraph, and telephone lines and poles, by any citizen, association, or corporation of the United States, where it is intended by such to exercise the use permitted hereunder or any one or more of the purposes herein named: *Provided*, That such permits shall be allowed within or through any of said parks or any forest, military, Indian, or other reservation only upon the approval of the chief officer of the Department under whose supervision such park or reservation falls and upon a finding by him that the same is not incompatible with the public interest: *Provided further*, That all permits given hereunder for telegraph and telephone purposes shall be subject to the provision of title sixty-five of the Revised Statutes of the United States, and amendments thereto, regulating rights of way for telegraph companies over the public domain: *And provided further*, That any permission given by the Secretary of the Interior under the provisions of this act may be revoked by him or his successor in his discretion, and shall not be held to confer any right, or easement, or interest in, to, or over any public land, reservation, or park.

Several applications have been presented under this act for preliminary surveys in the park, with a view to the manufacture of electric power for industrial purposes, and the construction of reservoirs for the storage of water for domestic and irrigation uses.

These have been given careful consideration and refused in all cases where, in my judgment, the facts did not warrant a finding, as required by the act, "that the same is not incompatible with the public interest," and also where the proposed enterprise necessarily involved the appropriation of private property in the park (the owner or owners not having consented thereto), or the violation of the act of October 1, 1890 (26 Stat. L., 650), creating the park, especially the provision that directs the Secretary of the Interior to make regulations "for their retention in their natural condition of all * * * natural curiosities or wonders within said reservation."

The provisions of this act, and those of the act under which these applications were made, are in no respect repugnant to each other, and I have, therefore, regarded it as obligatory upon the Department to deny such applications when the permits desired were for a purpose, however meritorious, inconsistent with the former act.

The survey of the boundary lines of the park has been completed and monuments fixed in place by Messrs. Jones & Hopper, under their contract for the work, and signboards showing distances have been erected at the junction of important trails and roads.

The appropriation of $6,000 for this park has been expended for the following purposes, to wit: Trail from Poopenant Valley to Lake Eleanor, about 9 miles; trail from Lake Tenaya, via McGee Lake, to Smoky Jack Meadows, about 14 miles; trail from Rancheria Creek to the "Sink," about 10 miles; trail from west summit of North Fork of San Joaquin River to Kings Creek and bridging said river, trail of about 11 miles; trail near upper Chilnualna Falls, from Johnson to Chiquita Lake, and from Rancheria Bridge to connect with Poopenant trail to Lake Eleanor, about 20 miles; trail from the "Sink" to Rodgers Lake, about 10 miles; repairing and tarring the two suspension bridges in the valley of the Merced River, near Henessey's ranch site; and for grass seeds for use in the park.

Under the act of June 6, 1900 (31 Stat. L., 618), the Secretary of War was authorized and directed, upon request of the Secretary of the Interior, to detail troops for the protection of the parks in California, and pursuant to this statute different officers and troops have been detailed from year to year for the protection of the parks. As bearing upon the necessity for the establishment of permanent posts in these parks and the continuance on duty therein for periods longer than the year, as has been the practice in the past, the superintendent states that:

> The nature and importance of the duties of the acting superintendent make it most desirable that an officer who takes an interest in the work should serve at least three years in that capacity. No officer can become well acquainted with the park and all its needs in one season. Lack of continuity of policy, difference in interpretation of the rules, and the fact that each new superintendent only begins to learn what his duties are by the time he is relieved, are all very objectionable features in the present system of management.
>
> It is urgently recommended that hereafter the officer who is appointed acting superintendent be given the position for three years if the exigencies of the military service permit.

The question of the advisability of inaugurating the same policy regarding the parks of California as has heretofore been adopted in the administration of the Yellowstone Park, namely, the assignment of officers as acting superintendents to continue on duty for several years and the establishment of permanent quarters for troops, the latter to remain in the reservation throughout the year, was brought to

the attention of the honorable Secretary of War as being in the interests of the better administration of affairs of the reservation as well as the more economical expenditure of the appropriations made by Congress for their protection. There being no funds, however, available under the War Department for the construction of buildings in these parks for the use of troops stationed therein the course suggested could not be carried into effect. It is understood, however, that in the estimates of the War Department for the ensuing fiscal year will be included an item providing for the construction of permanent quarters in these parks, and it is hoped that Congress will make the desired appropriation.

Sequoia and General Grant National Parks.

Sequoia Park is located in Tulare County, Cal., and has an area of about 250 square miles. It was set aside by act of Congress approved September 25, 1890 (26 Stat. L., 478), and placed under the control of the Secretary of the Interior.

Capt. Charles Young, Ninth Cavalry, U. S. Army, acting superintendent, reports that with Troops I and M, Ninth Cavalry, he left San Francisco on May 20, 1903, arriving at Kaweah, Cal., June 3, remaining in the park until October 15. A general supply camp was established and maintained here throughout the year.

Immediately after arriving at Kaweah steps were taken to secure the park from injury by sending detachments to Cedar Creek on the Old Colony Mill road, to Cold Spring on the Mineral King road, to Cloughs Cave on the South Fork of the Kaweah River, and to General Grant Park. The forest rangers who reported to the acting superintendent were likewise used for patrol duties in the park.

Work was commenced upon the Giant Forest road while the earth was soft and in condition. The repair work on this road, for which $500 had been granted Forest Ranger Ernest Britten, was inspected, the route of extension of the road gone over, and preparations made for the work, which was pushed with all possible haste to completion.

Only one case of violation of park regulations occurred during the season. This was by a tourist who had been given permission to carry a revolver for self-protection in the park. He fired without result at a deer in Giant Forest; was immediately disarmed and arrested by a deputy forest ranger. Explanation was later made by this tourist, and, being satisfactory, his pistol was returned to him.

The carbines of the soldiers were boxed after target practice and were not fired within the park limits or carried therein except in two instances when it was necessary in passing outside these limits.

The game is increasing rapidly, and getting tamer; deer and bear are frequent visitors upon the traveled roads in or near the camps.

There has been but one small forest fire, within a remote corner of the park, which was doubtless caused by lightning, and extinguished by the storm before it had a chance to spread and do much damage.

The road into Giant Forest, consisting of about 3 miles, was completed August 15, upon a grade not exceeding anywhere 8 per cent. This, the superintendent says, should insure a thousand tourists where in previous years there have been but a hundred. A good wagon road was constructed to Moro Rock, 2 miles farther, in connection with the general plan of extension of this to the meadows and principal points of interest. This road was constructed wholly on United States lands. The trail from Giant Forest to Mineral King, via Panther Peaks, was also improved. The troops also repaired about 18 miles of trail.

The trees of the park consist of pines and cedars and firs in general, and of the giant redwoods, or sequoias, in particular. It has been said that the Sequoia National Park is the Giant Forest, but it is believed by many that even without the grandeur of the Giant Forest, which is matchless anywhere else in the world, there are enough beautiful mountain views, delightful camping sites, and water courses stocked with fish to constitute a national park where the overworked and weary citizens of the country can find rest, coolness, and quiet for a few weeks during the hot summer months, and where both large and small game can have a refuge and be allowed to increase.

A journey through the park and the abutting Sierra Forest Reserve to the Mount Whitney country, it is stated, will convince even the least thoughtful man of the needfulness of preserving these mountains just as they are, with their clothing of trees, shrubs, rocks, and vines, and of their importance to the valleys below as reservoirs for storage of water for agricultural and domestic purposes. In this, then, lies the necessity of forest preservation.

Comparatively few people in the country know where in California outside of Calaveras County the *Sequoia gigantea*, commonly termed "giant redwoods," or "big trees," are located, the Sequoia National Park being merely a name to them. The superintendent expresses the hope that something may be done to disseminate knowledge of the whereabouts of these trees, which must be seen in their natural location to be appreciated. They are most numerous in the giant forest of Sequoia Park and in the General Grant National Park. The major part of the Sequoia, where the largest giant trees are found, belong to private claimants. He states that the lands on which these giant trees are found should be bought without further delay by the General Government.

In discussing the subject of patented lands in the reservation the superintendent states:

> The owners have been waiting patiently for nearly twenty years and holding this land for the Government. Many of them are tired of waiting, and in the Atwell

Mill country (also private claims within the park), where these big trees grew close to the county road, the owners have cut them by the wholesale and put the lumber upon the market, so that where once was a fine forest of these magnificent giants there now is but devastation and ruin in the shape of stumps and sawdust piles on either side the high road. It is but just to the owners and for the best interest of the Government that these patented lands within the park limits be purchased if the parks are to be continued. The owners of these lands are only detained from cutting the timber, including the giant forest trees, by want of public or private roads leading to a market for it, the General Government having forbidden them the use of its road for this purpose. There is no doubt that this subject of private claims will make increasing trouble in the management of the parks and also in the enjoyment of them by the people. Even in the General Grant Park, which is but 2 miles square, there are 160 acres of private or patented land. This can be bought very cheap, as also can that in the Sequoia National Park. The prices asked by the owners are not exorbitant, but in every case reasonable.

Appended to the report is a list purporting to show the private lands in the Sequoia and General Grant national parks, with a statement of the ownership and the price at which the owners are willing to dispose of their holdings to the Government. The acreage of the patented lands in the Sequoia Park is stated to be 3,716.96, having an aggregate value of $70,734, and in the General Grant National Park 160 acres, valued at $1,600. The desirability of the extinguishment of the private holdings in these reservations has heretofore been brought to the attention of Congress in prior annual reports, and I again recommend that early action be taken by Congress looking to the acquirement of these patented lands or that, as recommended in the case of the patented lands in the Yosemite National Park, Congress extend to the parks under consideration so much of the act of Congress approved June 4, 1897, as permits the relinquishment by the owners of tracts of land in the several forest reservations and the selection in lieu thereof of vacant lands in other localities which are open to settlement. Appended hereto (page 286, Exhibit L) is a form of bill which if enacted would carry into effect my recommendations in the premises.

By the act of Congress approved February 15, 1901 (31 Stat. L., 790), the Secretary of the Interior is authorized and empowered to grant rights of way in these parks for telephone, telegraph purposes, and for water conduits, reservoirs for irrigation, mining or quarrying, manufacturing, or other purposes. Several applications for privileges in the park under this statute have been presented, but none has been granted. The policy of the Department regarding cases arising in these parks under the act above mentioned is set forth under the title of Yosemite National Park on page 157 of this report.

General Grant Park.—This park is situated in Mariposa County, Cal., and is about 2 miles square, the attraction therein being the two groves of Sequoia trees, one of which contains a very large tree called the General Grant. During the season the improvements in this park have progressed to the extent of finishing the road which

was commenced last season, from the General Grant tree toward Visalia; it joined outside the park the county road through Happy Gap, thus cutting out the dangerous and difficult Stevens grade, to which reference has been made in prior reports. A good road is now available from Visalia and surrounding towns into Grant Park and permits the Government to furnish supplies, etc., to its soldiers doing guard duty there, without difficulty during the season.

In addition to this important and much-needed improvement, over 1½ miles of fire brake have been constructed on the north and west sides of the park. Many acres have been cleared of rubbish in the vicinity of the giant trees, the General Grant tree fenced, a small barn built for the rangers' animals in use for park services, and the road extended in the park toward Converse Basin.

The superintendent recommends that the private claim of E. O. Miller, 160 acres of this park, be purchased for the small sum of $1,600, for which he agrees to sell to the United States.

Estimates for the parks for the ensuing year have been submitted to Congress for an appropriation of $10,000 for the Sequoia and $2,500 for the General Grant, to be used in the management and protection of said reservations.

Mount Rainier National Park.

By act of Congress approved March 2, 1899 (30 Stat. L., 993) certain tracts, pieces, or parcels of land lying and being in the State of Washington, and within the boundaries particularly described as follows, to wit: "Beginning at a point three miles east of the northeast corner of township numbered seventeen north, of range six east, of the Willamette meridian; thence south through the central parts of townships numbered seventeen, sixteen, and fifteen north, of range seven east of the Willamette meridian, eighteen miles, more or less, subject to the proper easterly or westerly offsets, to a point three miles east of the northeast corner of township numbered fourteen north, of range six east of the Willamette meridian; thence east on the township line between townships numbered fourteen and fifteen north, eighteen miles, more or less, to a point three miles west of the northeast corner of township fourteen north, of range ten east of the Willamette meridian; thence northerly, subject to the proper easterly or westerly offsets, eighteen miles, more or less, to a point three miles west of the northeast corner of township numbered seventeen north, of range ten east of the Willamette meridian (but in locating said easterly boundary, wherever the summit of the Cascade Mountains is sharply and well defined, the said line shall follow the said summit, where the said summit line bears west of the easterly line as herein determined); thence westerly along the township line between said townships num-

bered seventeen and eighteen to the place of beginning, the same being a portion of the lands which were reserved from entry or settlement and set aside as a public reservation by proclamation of the President on the twentieth day of February, in the year of our Lord eighteen hundred and ninety-three, and of the Independence of the United States the one hundred and seventeenth," has been dedicated and set aside as a public park for the benefit and enjoyment of the people of the United States, to be known as the Mount Rainier National Park. The park by said act is placed under the exclusive control of the Secretary of the Interior, who, among other things, is authorized to establish rules and regulations and cause adequate measures to be taken for the preservation of the natural curiosities or wonders within the park, the protection of all timber and mineral deposits from injury or spoliation, the preservation of game and fish, and the removal of unlawful occupants and intruders.

The act setting aside these lands for park purposes differs from the acts of Congress creating other national parks in that it provided, among other things, "that the mineral land laws of the United States are hereby extended to the land lying within said reservation and said park." It is not believed, however, to be the purpose of this provision to extend the right to use the park lands without restriction, and in the regulations for the government of this park promulgated August 1, 1903, copy of which is hereto appended (page 286, Exhibit M), it is specifically provided that prospectors or miners will not be permitted to injure or destroy or interfere with the retention in their natural condition of any timber, mineral deposits, natural curiosities or wonders within the park *outside the boundaries of* their respective *mining claims* duly located and held under the mining laws.

In previous annual reports, in discussing the status of this national park, attention was directed to the advisability of repealing, for administrative reasons, section 5 of the act of March 2, 1899, above mentioned, as well as the making of appropriations for the protection of the reservation; no legislation, however, on the subject was enacted by Congress. It has therefore been necessary to continue the forest superintendent of the State of Washington as acting superintendent of the park during the past year. This assignment, however, should not be continued during the next season, as it interferes with the proper performance of his regular duties in the enforcement of the regulations of the forestry service in the State.

The forest superintendent in charge states in effect that there is but one wagon road leading into the park. It extends from Longmire Springs, at the base of Mount Rainier, about 6 miles along the Nesqually Glacier to the western boundary of the park, where it continues as a country road over the forest reserve, and connects with the

Tacoma and Eastern Railroad at Eatonville. From Longmire Springs a trail extends up the mountain about 8 miles to a point near the Nesqually Glacier in Paradise Valley, at the upper terminus of which is Reese's tent camp; another trail leaves the wagon road at the point where the Rainier Fork unites with the Nesqually Glacier, following the valley of the Rainier Fork for about 12 miles, and reaching a beautiful open park known as Indian Henry's Hunting Grounds; this trail should be cleared, graded, and extended to connect with Paradise Trail at the Nesqually Glacier. The park is also reached by trails from Fairfax leading to the Mowhich Glacier, which region is not considered as attractive and accessible as the southern part of the park.

A small band of elk, driven from the forests at the head of the Shoomum Chuck River, are now in and about the park, apparently with their young, and an effort should be made to protect them.

About 300 tourists visit the park during the season, and there is a general disposition among them to observe the regulations. Campers, upon request, were permitted to cut small boughs from the trees for their beds, upon the condition that they were removed in such a manner as not to injure or detract from the appearance of the trees.

Some difficulty will doubtless be had in the future with the Indians from the adjacent reservations who maintain that they have treaty rights which relieve them from any obligations to respect the regulations of the Department relative to the killing of fish and game in the park.

A tent hotel comprising eight tents was operated during the season by Mr. John Reese under a license granted by the Department. He states he entertained during that period 255 guests, charging $2 per day and $10 per week for accommodation, and also furnished guides at $3 per day.

A hotel was also operated by Mr. Elcain Longmire, at Longmire Springs, on land patented prior to the creation of the park.

Two applications were presented for establishing reservoirs, or reservoir sites in the park, for the purpose of collecting water and conveying the same from the park lands by flumes and pipe lines, and which were denied for the reason that the act creating the park made no provision for the granting of such rights of way.

No permits were requested to transport stock through the park, and grazing therein was confined to the horses of travelers and to the few head of stock owned by Mr. Reese in connection with his hotel.

Reports indicate that at least five mineral claims were located, and that about seventy prospectors entered the park during the past season.

The sundry civil act of March 3, 1903, authorized the Secretary of War to expend the sum of $10,000 in causing a survey to be made, and for the construction of a wagon road into the park. Maj. John Millis,

U. S. Army, was placed in charge of the work, and on September 8, 1903, he was authorized to invite bids for the construction of the road in question.

On the 16th of March, 1901, the governor of the State of Washington approved an act of the legislature of the State in relation to Mount Ranier National Park. The act in question is as follows:

SECTION 1. Exclusive jurisdiction shall be, and the same is hereby, ceded to the United States over and within all the territory which is now or may hereafter be included in that tract of land in the State of Washington set aside for the purposes of a national park and known as Ranier National Park, saving, however, to the said State the right to serve civil or criminal process within the limits of the aforesaid park, in suits or prosecutions for or on account of rights acquired, obligations incurred or crimes committed in said State but outside of said park, and saving further to the said State the right to tax persons and corporations, their franchises and property, on the lands included in said park. *Provided, however,* That jurisdiction shall not vest until the United States through the proper officer notifies the governor of this State that they assume police or military jurisdiction over said park.

No appropriation having been made by Congress for the protection and administration of this park, the notice required by the provision of the above-mentioned act has never been given by the Secretary of the Interior to the governor of the State of Washington.

Estimates for this park for the ensuing fiscal year have been submitted to Congress for an appropriation of $2,600, for the protection and improvement and construction of roads and trails, etc., in this reservation.

CRATER LAKE NATIONAL PARK.

By the act of Congress approved May 22, 1902 (32 Stat. L., 202), the tract of land bounded north by the parallel 43° 4′ north latitude, south by 42° 48′ north latitude, east by the meridian 122° west longitude, and west by the meridian 122° 16′ west longitude, having an area of 249 square miles in the State of Oregon, and including Crater Lake, has been reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart forever as a public park or pleasure ground for the benefit of the people of the United States, to be known as Crater Lake National Park.

The act setting aside these lands for park purposes differed from the acts of Congress creating other national parks in that it provided, among other things, that the reservation should be open "to the location of mining claims and the working of the same." It was not believed, however, to be the purpose of this provision to extend the mining laws to the reservation without limitation, but only to authorize the location and working of mining claims thereon in such manner as not to interfere with or prejudicially affect the general purpose for

which the reservation was established. The regulations for the government of the park clearly define the conditions under which this privilege is to be exercised.

W. F. Arrant, the superintendent, reports that he thoroughly patrolled the reservation to see that the rules prohibiting hunting or trapping were not violated, etc., and during the winter and early spring made frequent trips through the park for that purpose, sometimes on 10 or 12 feet of snow.

A road from the main road to the rim of the crater at the lake was surveyed and located last fall, and as soon as the snow had disappeared in the spring work was continued on this road, about 2 miles being constructed, and a bridge was built across Anna Creek 104 feet long and 30 feet high.

From the main traveled road three of the worst hills have been eliminated by building good, easy grades around, and a good bridge, 50 feet long, has been constructed across Bridge Creek. The road has been otherwise improved by taking out roots, rocks, leveling up, etc.

The improvement work near Bridge Creek and the work on the new road exhausted the appropriation available for improvements; thereafter, on the 20th of August, 1903, work on improvements was discontinued. A large number of persons visited the reservation during the season, many of whom camped therein for various periods, the exact number, however, it is not practicable to state, owing to there being no registry station in the park and the absence of the superintendent from points of entry in the dispatch of his business in other parts of the reservation.

After the close of work on roads headquarters was established at the head of Anna Creek, and the camps of tourists in the reservation were visited and trespassing and violations of the regulations prevented until the 5th day of October, when headquarters was moved to the vicinity of Klamath Falls. Since the close of the tourist season the park has been patrolled, so that public property has been protected and the rules observed.

Five permits were issued for driving stock through the park to points beyond the reservation; the number of stock passing over the park roads aggregated 4,000.

The superintendent states that during the summer months his entire time is taken up in supervising the improvements and other affairs of the park. Dangerous fires frequently break out in the summer time, and there is more or less trespassing in grazing stock on the park lands, as well as on the part of the people in cutting green timber. To fight fires and to enforce the regulations as to grazing and depredations on timber it is absolutely necessary that at least two patrolmen be provided in the park from June 15 to October 15, and these employees can not be provided with the present limited appropriation.

Increased estimates for the protection of the reservation during the next year have, therefore, been submitted.

Although the act establishing the park provides for "the location of mining claims and the working of the same," and the regulations for the government of the park define the conditions under which this privilege may be exercised, no claim is reported as having been filed during the past year.

The superintendent submits estimates of appropriations for the service of the fiscal year ending June 30, 1905, as follows: Improvement of road, south line of park to Anna Creek bridge, $400; improvements at White Horse bridge and grading, $250; new road from White Horse to Anna Creek bridge, $1,000; completion of new road, Anna Creek bridge to rim of crater, $1,000; improvement of trail inside crater and cable for same, $500; providing iron railing on Victor Rock for protective purposes, $150; registry, station, and tool houses, and barn, $1,550; salaries, superintendent and two patrolmen, with allowance for horse, $1,845; aggregating $6,695.

Wind Cave National Park.

By act of Congress approved January 9, 1903 (32 Stats. L., 765), a tract of land in the State of South Dakota "beginning at the southeast corner of section thirteen, township six south, range five east, Black Hills meridian, South Dakota; thence westerly to the southwest corner of the southeast quarter of section sixteen said township; thence northerly along the quarter-section lines to the northwest corner of the northeast quarter of section four said township; thence easterly to the southwest corner of section thirty-four, township five south, range five east; thence northerly to the northwest corner of said section; thence easterly to the northeast corner of section thirty-one, township five south, range six east; thence southerly along the section lines to the southeast corner of section seven, township six south, range six east; thence westerly to the southwest corner of said section; thence southerly to the southeast corner of section thirteen, township six south, range five east, to the place of beginning," has been reserved and withdrawn from settlement, entry, sale, and other disposal and set apart as a public park, to be known as the Wind Cave National Park.

The entrance to the cave is about 12 miles southeast of the town of Custer and 12 miles east of the town of Black Hills, S. Dak., and is in a deep ravine, with the hills sloping back to an elevation of from 60 to 120 feet, with an old log cabin over the same which is now being used as headquarters by the official in charge of the park. The land within the limits of the park is of little value for grazing purposes and can be cultivated only in small patches.

In 1898 two geologists visited the cavern and examined its principal points. It is of great extent, having many miles of galleries branch-

ing and recticulating along the joint planes of the carboniferous limestone. There are numerous chambers of considerable size, and aptly named from some peculiarity of formation or natural decoration, reminding one of the object after which it is designated. Among others, the following are characteristic designations: The Bride's Chamber; Snowball Room, with walls and ceilings all potted with a gypsum formation which looks like flakes of snow; the Post-Office, with a box-work formation clinging to the limestone formation all about and overhead; the Red Hall, with sides of a soft red stone which is said to have a commercial value in the manufacture of paint; the Opera House, being an immense room grand in the formation of box work and varied colors of the rocks that form the grand arch overhead; the Devil's Outlook, an enormous crevice reaching 65 feet above, showing how the water has cut and ground the rocks until a sharp corner can not be found; Capitol Hill, with its high dome ceiling, in the center of which nature has placed a centerpiece of most beautiful box work; Odd Fellows' Hall, with three links in the ceiling formed by three holes cut out by the rushing water; the Stone Quarry, with great slabs of stone of a pink tint broken away as straight as if cut and piled up ready for a large building; the Garden of Eden, with its magnificent frost work and box work, coated with a pure white frost, and the edges trimmed with little white balls resembling pop corn, and long frost petals, with Noah's beard hanging from a little pointed rock from this frost work with slender strings like fine silver wire fully two feet long—words are inadequate to describe this spot; Corkscrew path, a winding trail leading to Dante's Inferno; Monte Cristo Palace, the Fair Ground, the Alpine Pass, and the Blue Grotto.

It is suggested that in ages gone by this cave was doubtless filled with water, which has left its marks all about it, and by the deposits has formed the beautiful frostwork; but now there are few places where any moisture is perceptible.

The park by said act is placed under the exclusive control of the Secretary of the Interior, who, among other things, is authorized to prescribe rules and regulations and establish such service as may be deemed necessary for the care and management of the same; in the exercise of his discretion, to rent or lease, under rules and regulations to be made by him, the cavern underlying the above-described lands, and also pieces or parcels of ground within said park for the erection of such buildings as may be required for the accommodation of visitors. All funds arising from such rentals or leases shall be covered into the Treasury of the United States as a special fund, to be expended in the care and improvement of the park.

The act setting aside the above-described lands for park purposes provided that in cases in which a tract covered by an unperfected bona fide claim is included within the limits of the park the settler or

owner may, if he desires to do so, relinquish the tract to the Government and secure other land outside the park, in accordance with the provisions of the law relating to the subject of such relinquishment of lands in the various forest reserves in the State of South Dakota, but no selections have as yet been reported.

At the time of the creation of the park there were ten entries, covering 1,519.15 acres, four of which, covering 639.76 acres, have been canceled, and one entry of 160 acres has been suspended and will probably be canceled; two entries, covering 239.39 acres, appear to be bona fide and valid, and three entries, covering 480 acres, have been found proper in all respects and patents issued therefor.

In the sundry civil act of March 3, 1903, an appropriation of $2,500 was made for the management and improvement of the park. Thereafter Seth Bullock, the forest supervisor of South Dakota, was placed temporarily in charge of the same. Subsequently William Rankin, of Deadwood, S. Dak., was appointed superintendent of the reservation, at a compensation of $900 per annum, with headquarters at Wind Cave, S. Dak., and general instructions were given him as to his duties in the care of the park. No rules and regulations have yet been promulgated for its government, but the matter is now under consideration and proper regulations will be issued at an early day.

The log cabin over the cave has been repaired and painted, a telephone line connecting Wind Cave with Hot Springs, S. Dak., has been authorized, and other improvements in the park are under way.

Estimates for the park for the ensuing fiscal year have been submitted to Congress for an appropriation of $2,500 for the protection and improvement of and construction of trails, etc., in this reservation.

Hot Springs Reservation.

The report of Martin A. Eisele, superintendent of the Hot Springs Reservation, demonstrates the continued prosperity of this remarkable health resort. The rate of increase in the patronage of the springs has been greater than ever before. The increase in 1900 over the previous year was, approximately, 25 per cent; the increase in 1901 over 1900 was 10 per cent; the increase in 1902 over 1901 was 18 per cent. The number of persons who visited the resort during the fiscal year 1903 was 90,000, or an increase over 1902 of 38 per cent. This remarkable record indicates the great esteem in which the springs are held as curative agents, and is a flattering tribute to their wonderful healing powers. The fact that the reservation is under the control of the Government has added to its wide popularity, and the visitors, who come from every part of the United States, evince a personal pride in its improvement and seem to feel a proprietary interest in its welfare.

Adjoining the reservation has grown up the thriving city of Hot Springs, with a resident population estimated at 12,000. Both town

and springs are situated in a valley, surrounded by wooded rocky mountain ridges, and the natural beauty of the place has been much enhanced by picturesque driveways and the resources of the landscape art. The town has all the appurtenances of a modern city, including electric street railway, electric lighting and gas, telephones, sewerage system, metropolitan police system, churches, public schools, banks, newspapers, and athletic arena. It has extensive hotel and boarding-house accommodations, of all grades and at various rates. The city is readily accessible by two railway systems, which, with their connections, furnish through car service to the great railway centers.

The original reservation of these springs by the United States was made by the act of April 20, 1832 (4 Stat. L., 505), which provided that the Hot Springs in the Territory of Arkansas, together with four sections of land, including the springs, should be set aside and reserved for future disposal by the United States.

By the act of March 3, 1877 (19 Stat. L., 378), the appointment of commissioners was authorized to lay out into squares, blocks, lots, avenues, and streets certain tracts of land in the county of Garland, State of Arkansas, known as the Hot Springs Reservation; the appointment of a superintendent by the Secretary of the Interior was provided for, and the levying of a tax on water taken from the Hot Springs authorized, the proceeds to be used in improvement of the reservation.

By the act of June 6, 1880 (21 Stat. L., 288), the mountainous districts known as North Mountain, Sugar Loaf Mountain, and West Mountain, together with Hot Springs Mountain, were forever reserved from sale and dedicated to public use as parks. These reservations, with Whittington Avenue Reserve, comprise in all 911.63 acres.

The hot water issues from about 48 springs on the west side and base of Hot Springs Mountain. These springs are mostly inclosed, for the purpose of protecting them from pollution, as well as to permit the conveyance of the water therefrom to the several bath houses and the impounding reservoir. A conservative estimate of the outflow of the springs may be stated to be 850,000 gallons daily.

Many theories have been offered as to the cause of the wonderful healing properties of the baths, but no hypothesis has yet been advanced which satisfactorily accounts for the remarkable cures which have been made. It seems not unlikely that they are in part due to some hidden element or subtle process of nature of which, in the present state of our knowledge, nothing is known. A chemical analysis of these waters was completed in December, 1901, at the request of the Department, by Prof. J. K. Haywood, of the Bureau of Chemistry, Department of Agriculture, and his report constitutes a valuable contribution to our knowledge of thermal waters. A summary of the analyses of the various springs will be found in the report of the superintendent. There will also be found in the report interesting discussions by med-

ical authorities of the pathological conditions in which the waters are of value.

The diseases chiefly benefited by the use of the waters are rheumatism, gout, stiff joints, skin diseases, scrofula, neuralgia or nervous affections, paralysis, spinal diseases, sciatica, catarrh, specific locomotor ataxia, dyspepsia, uterine diseases, especially sterility, leucorrhœa, malaria, blood disorders of a chronic character, and alcoholism. The use of the waters is contraindicated in pulmonary affections, especially such as are based on tubercular diatheses, valvular heart affections, paralysis from softening of the brain or spinal cord. For the benefit of physicians prescribing the baths there is included in the report of the superintendent a copy of the circular of instructions issued by Lieut. Col. Blair D. Taylor, commandant of the Army and Navy General Hospital, relative to the preparation and uses of the various baths, douches, massage, and internal administration of the waters as applied to the different diseases benefited thereby.

New regulations for the government of the bath houses receiving water from the reservation were adopted by the Department June 6, 1903, a copy of which is hereby appended (exhibit). Among other things these regulations provide for the registration of physicians desiring to prescribe the waters of the hot springs, such registration to be accorded only to physicians who have proper qualifications and character, and who do not engage in drumming for custom. The solicitation of patronage by registered physicians through the medium of drummers is prohibited under penalty of cancellation of the registration. The regulations also provide that no bath-house proprietor shall permit persons under medical treatment to bathe unless they present satisfactory evidence that they are under the treatment of a physician registered as above described. A board of competent physicians has been appointed to pass upon the qualifications of physicians desiring to prescribe the waters from the reservation, and said board is now at work preparing the register provided for by the regulations. It is believed that the enforcement of these regulations will do away with the nefarious practice of drumming for patients, which has hitherto existed among a certain class of physicians at Hot Springs, as well as the practice of employing "runners" for the bath houses, this latter practice having existed as a mere adjunct to the more serious evil of "doctor drumming."

There are 26 leases providing for the use of hot water on the Hot Springs Reservation. Of these, 21 are for operative bath houses, 2 are sanitariums, 1 is for the use of hot water for manufacturing purposes, and 1 is for water principally for drinking purposes. Two new leases have been granted, one to Simon Cooper for the operation of a pool for bathing diseased horses, and the building is now being erected; the other to M. H. Jodd and A. P. Aldrich, both of Hot Springs, Ark., for sufficient hot water to supply 12 bath tubs, to be kept and used in

a building to be erected on the north part of lot 5, block 66, city of Hot Springs, Ark., and to be known as the "Crystal Bath House," and devoted to the use of *colored people*, for the term of ten years from the 1st day of August, 1903.

Very few complaints have been received during the year as compared with former years, owing, doubtless, to improved facilities and more perfect organization. Arrangements have been made with the board of physicians for registration whereby occasional inspections by the board will be made supplementing the regular inspections of the superintendent's office, thus providing an additional safeguard against the failure to observe sanitary laws at the several bath houses.

The total number of tubs covered by the leases is 525, requiring, on a basis of 1,000 gallons per tub daily, 525,000 gallons of hot water to supply them.

The following table shows the several individuals, firms, and corporations now holding leases for hot water from the Government reservation, together with the date of each lease and the time of its expiration:

Name of bath house.	Lessee.	Tubs.	Date of lease.	Expiration of lease.
Alhambra	Alhambra Bath House Co	24	Feb. 28, 1894	Feb. 28, 1914
Arlington	Arlington Hotel Co	40	Mar. 3, 1892	Mar. 2, 1912
Majestic	Avenue Hotel Co	20	Jan. 1, 1903	Dec. 31, 1912
Ozark Sanatorium	Butterick Publishing Co	8	Sept. 16, 1898	Sept. 16, 1905
Eastman	New York Hotel Co	40	May 12, 1892	May 12, 1912
Great Northern	Fannie G. Williamson	19	May 25, 1897	May 15, 1912
Hale	Roots & Eastman	26	Jan. 1, 1893	Dec. 31, 1907
Horse Shoe	D. Fellows Platt	30	Jan. 1, 1895	Dec. 31, 1909
Hot Springs	C. H. V. & G. M. Smith	16	Jan. 1, 1903	Dec. 31, 1912
No house	Hot Springs Medical Co	4	July 24, 1894	July 24, 1904
Imperial	Fred N. Rix and Mary E. Barns	25	Jan. 1, 1902	Dec. 31, 1906
Lamar	M. C. Tombler and D. C. Buckstaff	40	Jan. 1, 1897	Dec. 31, 1916
Magnesia	Chas. B. Platt	30	Jan. 1, 1895	Dec. 31, 1909
Maurice	Maurice, Convers & Maurice	24	Jan. 1, 1897	Dec. 31, 1916
Ozark[a]	F. B. Latta and F. P. Sorrels	22		Dec. 31, 1902
Palace	Samuel W. Fordyce	23	Jan. 12, 1893	Dec. 31, 1906
Park	Park Hotel Co	40	May 12, 1892	May 12, 1912
Rector	Henry M. Rector	12	Apr. 16, 1894	Apr. 16, 1904
Rockafellow	Mahala J. Rockafellow	18	July 1, 1901	June 30, 1916
St. Joseph's Infirmary[b]	Sister Mary Aloysius	4		Dec. 31, 1901
Sumpter (no house)[c]	John J. Sumpter	8	Mar. 7, 1894	Mar. 7, 1904
Superior	Robert Proctor and Chas. N. Rix	16	Sept. 15, 1896	Sept. 14, 1906
Waverly	New Waverly Hotel Co	20	Mar. 24, 1893	Mar. 24, 1913
Rammelsberg	Jeanette Hogaboom, Aaron H. and Milo R. Buckstaff.	18	Jan. 1, 1899	Jan. 1, 1909
Moody	Nicholas M. Moody	10	July 1, 1900	June 30, 1910
Crystal	M. H. Jodd and A. P. Aldrich	12	July 31, 1903	Aug. 1, 1913
Horse Pool	Simon Cooper	[d]4,000	Oct. 30, 1902	Oct. 30, 1907

[a] Renewal of lease for the Ozark bath house has been suspended by the Department pending the completion of repairs and improvements exacted, which are now under way, and when finished a lease will be issued.

[b] The new bathing department of the St. Joseph's Infirmary is being erected upon plans approved by the Department, and when completed a new lease will be executed covering a water right to operate 10 tubs.

[c] The lease of John J. Sumpter forfeited July 1, 1903, for noncompliance with conditions contained in Department letter of January 2, 1903.

[d] Gallons per day.

The prices which the different bath houses may charge for baths are subject to approval and revision by the Secretary of the Interior, and are in all cases regulated by the class of bathing accommodations each house is in a position to furnish, the newer and better-equipped houses being allowed to charge higher prices than those of less modern build and inferior equipment. The scale of prices at present in force ranges from 25 to 50 cents for a single bath, and from $3 to $10 for a course of 21 baths. The rate charged by attendants is limited to 15 cents for a single bath, or $3 for a course of 21 baths; this rate applies to all the bath houses, regardless of the rate charged by them.

During the year the business of the bath houses has been of greater volume than ever before. The total number of baths given during the year, including those at the Government free bath house, was 716,053. The total amount received by lessees for baths was $165,426.70.

The United States free bath house has been in operation since 1878, Beginning with a rude box house and pools excavated in the natural tufa rock with mud bottoms, which became widely known as the "Mud-hole," it was enlarged and improved from time to time; but the improvements and additions did not keep pace with the demands. By the sundry civil act of June 28, 1902 (32 Stat., L. 456), $25,000 was appropriated for remodeling and enlarging the bath house. Contract for the work has been let, for the sum of $23,980, and the house is now in course of erection, and is expected to be available by January 1, 1904. In the meantime the indigent are being bathed in a temporary wooden building erected for the purpose. The new bath house will be a great improvement on the old, and in the opinion of the superintendent will meet all requirements for years to come. It will be conducted on the individual tub plan, instead of on the pool system, which permitted the mingling of persons afflicted with various diseases, and will be built according to the Roman system of baths, of placing the tubs in the ground on a level with the floor. During the year 187,089 baths were furnished. The total number of bathers was 8,909, of whom 6,586 were white males and 548 white females, and 1,148 were colored males and 627 colored females. The number of persons benefited was 5,092, and the number cured and discharged, 773. The operating expenses of the free bath house, including cost of the temporary building now in use, were $3,278.08 and the average net cost per bath was 1.75 cents.

The total receipts from bath houses, ground rent, etc., was $18,120. The disbursements by the superintendent for salaries, incidental expenses, and regular charges for maintaining the reservation, were $14,086.29. In addition to this there was disbursed by the Department for improvements from the Hot Springs Reservation fund the sum of $2,087.22. The total amount disbursed for all purposes during

the year (including $25,000 for the free bath house now under contract), was $63,734.49.

By the sundry civil act of June 28, 1902 (32 Stat. L., 456), Congress made appropriations for various improvements on the Hot Springs Reservation aggregating, with the amount appropriated for free bath house, $47,562. All of these appropriations have been expended, except that for the new free bath house, which is now in course of erection. Under these appropriations, the roads and drives have been widened and the turns lengthened and widened over the entire system. The grades have been modified in many instances, and almost all roads on Hot Springs Mountain have been covered with a coating of cement gravel. Surface cross drainage has also been provided at many points. As completed the roads are now safe and enjoyable drives, which add much to the attractions of the resort. The total mileage completed is 8¾. West Mountain road will be further extended during the coming year under an appropriation of $18,000 made for the purpose by the act of March 3, 1903 (32 Stat. L., 1119). The completion of this will give a fine mountain road from Gem street on the north to Grand avenue on the south, at a pleasant elevation, with the city below and in sight the entire distance.

The most important of the retaining walls originally contemplated and estimated for has been built, and adds much to the protection and adornment of the reservation. It consists of a wall on Fountain street, commencing at the rear of the superintendent's residence and extending to Happy Hollow Entrance road to Hot Springs Mountain, a distance of 1,340 feet. The wall varies from 3½ to 8 feet in height, is laid in broken range or square rubble 24 inches wide, coped with cut stone, and there are cement gutters on the rear line of coping.

About 1,100 yards of rich soil has been used to reenforce the park grounds and slopes where needed. The foregrounds and slopes of Reserve Park and Whittington Lake Park have been enriched, so that a good stand of grass may be maintained. The appropriation for repairs to draining system has been expended principally in the purchase of drain tile and cement. The appropriation for walks and footpaths, and that for trees, shrubbery, and flowers, has been used for the purposes named. Trees of a hardy and ornamental character have been provided, while roses and bulbs have been added for the purpose of harmonizing the ornamentation of the parks and grounds. Site No. 9 has been protected by a retaining wall along its rear line, which supports the overhanging tufa bluff.

Various improvements have been made from the Hot Springs Reservation fund, among which is a new greenhouse at a cost of $648.96, and new barns and vehicle sheds at a cost of $549.89. The amount remaining to the credit of the fund at the end of the year was $1,731.55.

On February 21, 1903, the legislature of Arkansas passed a law ceding jurisdiction over that part of the reservation on which the hot springs are located to the United States, thus necessitating a special legislation by Congress for the protection of that portion of the reservation. Heretofore misdemeanors have been tried in the local courts, but it is now desirable that the United States commissioner at Hot Springs should be authorized to try such cases. A bill covering the requirements in this matter is in course of preparation, and will be submitted in due time.

The superintendent renews his recommendation that Congress authorize the sale of the machinery belonging to the old pumping plant, which is useless to the reservation and rapidly deteriorating, and suggests that the proceeds of the sale be applied to the preparation of a room for the collection and exhibition of mineral specimens, indigenous flora, and other articles of peculiar local interest.

The superintendent also renews the recommendation that the act of March 3, 1901, relative to the leasing of bath houses on the Hot Springs Reservation, be amended so as to authorize the Secretary of the Interior to regulate the rates of water rentals at any time instead of at the expiration of every five years, as now provided by law, and also amending said law by abrogating the 40-tub limit, with a view to permitting the placing of tubs in private rooms of hotels having bath houses attached. I concur in these recommendations.

The superintendent recommends that an appropriation of $10,000 be made for the purpose of cutting out the undergrowth and cleaning up the surface of Hot Springs Mountain Reserve, West Mountain Reserve, and North Mountain Reserve by the removal of surface stone, dead wood, wild vines, and all kinds of undergrowth, trimming up trees, and evening up ground as far as practicable, and raking the entire surface, so as to add to the natural beauty and picturesqueness of these mountain parks, which consist mostly of rough and uneven wildwood at the present time. The mountains are now easily accessible by the new roads and footpaths, and the superintendent states that they afford great enjoyment to visitors to the resort.

An appropriation is requested for paved gutters for the mountain roads. The roads themselves are now completed or provided for, but the absence of stone gutters to carry the drainage and swift mountain streams away, he states, is a source of danger and may result in the formation of unsightly and even dangerous gulleys along the banks bordering on the roads. With gutters paved with cobblestone, floated in cement, entire protection will be obtained.

An appropriation of $6,002 is also recommended for filling up Whittington Reserve Park lakes with earth. Owing to the limited supply of water, it is stated that a certain amount of stagnation occurs at

times, thereby impairing the healthfulness of adjacent sections of the city.

The recommendation is also made that all Government buildings be painted on the exterior in bright, ornamental, and durable colors, and decorated in the interior where necessary. The superintendent states that the buildings of the Department appear to disadvantage in contrast with the bright and well-preserved buildings of the Army and Navy General Hospital, and suggests that if the buildings were well painted in uniform colors it would add much to the adornment of the reservation and keep pace with the improvements made by the lessee. He asks for an appropriation of $2,000 for the purpose.

The superintendent again calls attention to the advisability of selling the remaining Government lots. There are 157 of these lots, and he states that their retention is in a measure an injustice to the city of Hot Springs, as the lots do not bear their burden of taxation, and as they are mostly suburban they obstruct the extension of the sidewalk system. He suggests that a reappraisal and sale be ordered for March, 1904, as the lots would probably bring a better price then than at any other time, owing to the large number of visitors who will then be present.

The act of Congress approved March 3, 1877, entitled "An act in relation to the Hot Springs Reservation in the State of Arkansas" (19 Stat. L., 380), provides, section 19:

> That a suitable tract of land, not exceeding five acres, shall be laid off by said commissioners, and the same is hereby granted to the county of Garland, in the State of Arkansas, as a site for the public building of said county: *Provided*, That the tract of land hereby granted shall not be taken from the land reserved herein for the use of the United States.

Pursuant to the provisions of this statute there was set apart, by the Hot Springs Commissioners, 3.62 acres of land, known as block 114, in the city of Hot Springs, and the same was dedicated as the land granted by the United States in the county of Garland, in the city of Hot Springs, as a site for a public building. The county, however, never occupied any of the land so dedicated, but located its court-house and jail at a considerable distance therefrom on other land.

I renew the recommendations contained in previous annual reports that Congress repeal section 19 of the act above mentioned, for failure on the part of the county of Garland to use the land granted for the purposes specified in the act, and that authority be granted to sell block 114 at public sale in the same manner as other lots belonging to the Government in the city of Hot Springs are disposed of, the proceeds of such sale to be applied, as required by existing law, to the management and protection of the reservation.

The act of Congress approved March 3, 1901 (31 Stat. L., 1188),

making appropriations for the sundry civil expenses of the Government for the fiscal year ending June 30, 1902, and for other purposes, provides, among other things:

SEC. 4. That the Secretary of the Interior be, and is hereby, authorized and directed to determine the value of certain condemned buildings formerly located on Hot Springs Mountain Reservation, and on the east side of Valley street, in the city of Hot Springs, in the State of Arkansas, which buildings were condemned by the Hot Springs Commission, and proof of value taken by said Commission, under authority of law, and which were destroyed by fire on the night of the fifth day of March, eighteen hundred and seventy-seven, before said Commission had issued certificates for the value thereof, as they were authorized and directed, and did afterwards do for buildings similarly situated, but not burned. That the value of each building so condemned and burned shall be determined by the Secretary from the petitions and evidence filed before said Commission by the owners or occupiers thereof, by order of said Commission, and now on file in the Interior Department, or such other evidence as the claimants may file, and after such investigation as he may think proper.

SEC. 5. That a sum of money sufficient to pay for such investigation and the claims so ascertained and fixed by the Secretary of the Interior be, and is hereby, appropriated, out of any money in the Treasury not otherwise appropriated; and the Secretary of the Interior is hereby authorized and directed to pay to such person or persons, claimants, their executors, administrators, the sum or sums of money equal to the values so as aforesaid found by him.

SEC. 6. That the Secretary of the Interior is required to report to Congress the results of his action under the foregoing sections.

Pursuant to the requirements of the statute, I have to report that 23 claims were presented thereunder; 8 were allowed prior to the beginning of the present year, leaving 15 pending. During the past year 1 claim, that of Elbridge M. McDonald, was dismissed and 11 were allowed, to wit: Shade A. Sammons and the heirs of John C. Hale, deceased, $600; estate of Frank Horton, deceased, $800; estate of Carson D. Hay, deceased, $250; James K. Lane, $1,650; Huffman & Hamilton, $6,000; Prosper H. Ellsworth, $3,500; estate of Giovanni Razetti, deceased, $1,000; William H. Renaud, surviving partner of John I. Adams & Co., $2,000; George G. Latta, $700; George G. Latta and S. W. Fordyce, and estates of Sallie E. George and Mary A. Donnelly, deceased, $3,500, and estate of Robert C. Jones, deceased, $150.

CASA GRANDE RUIN.

This is one of the most unique and interesting prehistoric ruins in the United States, the building having been erected by one of the most advanced races who once inhabited the Southwest.

The Casa Grande ruin is situated 18 miles northeast of Casa Grande Station on the Southern Pacific Railroad, in Pinal County, Ariz., and embraces the S. ½ SW. ¼ SW. ¼ SE. ¼ sec. 9; NW. ¼ W. ½ NE. ¼ NE. ½ SW. ¼ and NW. ¼ SE. ¼ sec. 16, T. 5 S., R. 8 E., Gila and Salt River meridian. The reservation contains about 480 acres, and was set aside by Executive Order of June 22, 1892, under the act of Congress approved March 2, 1889 (25 Stat., L. 961).

The structure is built of the material known as cajon—that is, puddled clay molded into walls and dried in the sun, and is of perishable character. It covers a space 59 feet by 43 feet 3 inches square, with an outer door on every side. There are five rooms or compartments on the ground floor. The building was originally five or six stories high, but the walls have greatly disintegrated owing to the action of the elements, and the outer walls at no place show more than three stories. The walls of the inner room are one story high.

By the act of March 2, 1889, supra, $2,000 was appropriated for the repair and protection of the ruin, and this was expended in removing débris, supplying underpinning, filling cavities, and fixing in place wooden and iron braces.

By the act of June 28, 1902 (32 Stat. L., 454), an additional sum of $2,000 was appropriated for the repair and protection of the ruin, and on June 22, 1903, contract was awarded for the erection of a corrugated-iron roof over the ruin, which should protect the structure from the elements and yet not impair the original outline of the ruin. This work has been satisfactorily completed.

The custodian, Mr. Frank Pinckley, who resides on the reservation, states that widespread interest has been manifested in the ruin and the number of visitors has been steadily increasing.

In addition to the roof which has been supplied during the past summer over the structure, some additional repairs are yet required, consisting of renewing the lintels of doors and windows and supplying underpinning for the walls in several places. When these are made, the ruin will be in a fair state of preservation.

He recommends an appropriation for the excavation of the mounds and ruins on the reservation, the work to be performed under the supervision of the Bureau of American Ethnology. He expresses the opinion that it would greatly enhance the value of the ruins if some weapons, industrial implements, or domestic utensils should be found, which would throw some light upon the manners and customs of the race inhabiting these ruins, and recommends that $3,000 be appropriated for the protection and improvement of the ruin and excavations on the reservation.

The attention of the Secretary of the Smithsonian Institution was called to this matter, and he stated that the Institution would be very glad to take charge of the work of excavating the mounds if authorized by Congress, and expressed the opinion that such excavations could not fail to disclose many objects of great interest and value in the field of archæology. With regard to the importance of the subject, he further stated:

> I can not speak too strongly, as under existing conditions nonscientific explorers are fast pillaging the most interesting sites and destroying records which history and science should have forever at their disposal. Furthermore, the agents of foreign museums and associations are rapidly carrying abroad these important traces of our

aboriginal inhabitants, which should properly be preserved at our own capital, this being in accordance with the policy of most foreign countries having antiquities worthy of protection.

I most earnestly recommend that the appropriation of $3,000 be made by Congress for further investigation, etc., in connection with these ruins.

ELEEMOSYNARY INSTITUTIONS.

The act of Congress, entitled "An act to establish a board of charities for the District of Columbia," approved June 6, 1900 (31 Stat. L., 664), provides, among other things, that said Board of Charities—

shall visit, inspect, and maintain a general supervision over all institutions, societies, or associations of a charitable, eleemosynary, correctional, or reformatory character, which are supported in whole or in part by appropriations of Congress made for the care or treatment of residents of the District of Columbia; and no payment shall be made to any such charitable, eleemosynary, correctional, or reformatory institution for any resident of the District of Columbia who is not received and maintained therein pursuant to the rules established by such Board of Charities, except in the case of persons committed by the courts or abandoned infants needing immediate care.

The Attorney-General, on the 12th of October, 1900, in construing this act, held that the Government Hospital for the Insane, Freedmen's Hospital, the Columbian Institution for Deaf and Dumb, and the Washington Hospital for Foundlings, created by prior laws and placed under the supervision of the Secretary of the Interior, came within the terms of said act of June 6, 1900, and that—

with the exception that the Board of Charities is given the general supervision of these institutions and, under the order of the District Commissioners, the power of investigation, with the duty of submitting a report and recommendations to Congress, the powers and duties of the Secretary of the Interior are unchanged by the act of June sixth, nineteen hundred, and remain the same as before its enactment.

In previous annual reports attention has been directed to the fact that a divided supervision or control over the class of institutions enumerated, especially where the lines of division are uncertain and not easily understood, would have a tendency to embarrass the immediate management of each institution and to detract materially from the desired standard of excellence. The recommendation heretofore made in this matter that as to each of said institutions the authority, etc., of the Board of Charities be transferred to the Secretary of the Interior, or the authority and responsibilty of the Secretary of the Interior be transferred to the Board of Charities, is accordingly renewed.

Considering the character and purpose of each institution, and the extent of the supervisory authority of the Secretary of the Interior over the same prior to the passage of the above-mentioned act, probably the best results could be obtained if the administration of the affairs of the Government Hospital for the Insane, Freedmen's Hospital,

and the Washington Hospital for Foundlings were placed exclusively under the supervision of the Secretary of the Interior. A form of bill which, if enacted by Congress, will effectuate this recommendation, is hereto appended, page 284, Exhibit J.

The Government Hospital for the Insane.

The annual report of the board of visitors shows that the affairs of the hospital are in a very satisfactory condition. The general health of the people has been fairly good, with the exception of a number of cases of typhoid fever. Repeated examinations of the drinking water and the milk supply were negative in results, a bacteriological examination, however, of hydrant water, which was used in the mixing of condensed milk, was found to be the source of infection. This was at once corrected and since there have been but two isolated cases of typhoid fever in the institution.

At the close of the fiscal year, on the 27th of June, 1903, Dr. A. B. Richardson, the superintendent, while yet in the prime of life and apparently in perfect health, was seized with an apoplectic attack and passed away in a few hours. He was an alienist of national reputation and wide repute as an administrator. His death was a great loss to the hospital and is greatly deplored by the board and his many friends in the institution, in the city of Washington where he was well known, and elsewhere.

Dr. M. J. Stack, first assistant physician, was thereafter designated as acting superintendent and continued in charge of the hospital until October 1, 1903, upon which date Dr. William A. White, of Binghamton, N. Y., who, in the meantime had been appointed to the position made vacant by Doctor Richardson's death, assumed control.

The number of patients in the hospital at the beginning of the year was 2,316; there were admitted during the year 734 patients, the largest number in the history of the hospital, making a total under treatment of 3,050. During the year there were 258 deaths; 269 were discharged recovered, 131 improved, 25 unimproved, and 6 not insane, leaving on the records at the close of the year 2,369.

The several new buildings of the extension, authorized by Congress, in process of construction are nearing completion, with the exception of the new administration building, on which work was commenced at a later date than the others. It will, however, be some months before the buildings are ready for furnishing. In the present overcrowded condition of the hospital, and at the present rate of increase of the population, it will only be a few years when all the thousand additional beds provided in this extension will be occupied; the rate of increase will, of course, depend in some measure upon the number of men kept in the service of the Army and Navy, the insane convicts, and the rate of growth of the District of Columbia.

The training school continues in operation and is doing good work. The training of nurses in the care of the sick and insane not only makes it possible to raise the standard of that care but attracts a better class of employees to the hospital, who are anxious to avail themselves of the instruction.

During the year the pathologist has had under preparation an exhaustive study of 29 cases of intercranial tumors, the results of which will appear in a separate volume. In addition to this ordinary routine work has been done. One hundred and twenty-five post-mortem examinations have been made, some 50 new specimens added to the museum, and a number of specimens preserved for future microscopic study.

In the department of clinical pathology 873 urinalyses have been made for records and diagnostic purposes. The blood has been examined in 420 cases for evidence of malaria, typhoid fever, and anæmia. In 44 cases the plasmodium malaria was found; in 29 cases the Widal reaction was present. The sputum was examined in 106 cases, with positive evidence of tuberculosis in 25 cases and of pneumonia in 4 cases.

During the year the division of zoology, United States Public Health and Marine-Hospital Service, in cooperation with the hospital, made a systematic examination of the patients to determine the frequency of intestinal zooparasites.

Among the more important results obtained may be mentioned a number of cases of hook worm (*uncinariasis*); several cases of infection with the Cochin China worm (*Strongyloides stercoralis*) have also been found. The larger tapeworm (*Taenia*) were rare, only one case being discovered, but the interesting fact was developed that six patients showed infection with the dwarf tapeworm (*Hymenolepis nana*), which heretofore has been considered a very rare parasite in this country.

The hospital also cooperated with the Office of Experiment Stations of the Department of Agriculture in a series of nutrition investigations. These investigations showed that the food furnished the patients was ample in quantity, while the diet of the attendants was generous. The food was uniformly of good quality and was stored, handled, and cooked in a cleanly way. A certain percentage of waste is, of course, inevitable in handling such large amounts of food as are required in this hospital, but by accurately determining just how much this was in respect to each article of diet and what was its source, it was possible to materially reduce it in some instances.

By provision contained in the sundry civil act approved March 3, 1903 (32 Stat. L., 1120), the Secretary of the Interior was authorized to install an electrical fire-alarm apparatus in the buildings of the hospital, or in such parts thereof as in his judgment the same may be required, and an appropriation of $25,000 was made for the purpose.

Pursuant to such authority, bids for the installation of such a system were duly solicited by public advertisement, and after a very thorough investigation and examination of the different systems proposed to be installed, the contract for the work was awarded to the National Automatic Fire Alarm Company, of Washington, D. C., for the sum of $24,535.56. The contract requires that the whole equipment and its connections shall be completed within one year, and shall be maintained by the company at its own expense for the period of one year subsequent to the time of completion and acceptance of the whole work.

The board of visitors, in discussing the legislative needs of the hospital, state that—

> Your attention is also respectfully called to the necessity for amending the law relating to the disposition of pensions of patients who have been admitted to the hospital from the National Homes for Disabled Volunteer Soldiers who have no dependent relatives. The law now provides that in all such cases the pension shall be paid to the superintendent for the support of the patient and be credited to the general support appropriation without regard to the amount. When these pensions are credited to the general fund of the hospital they can not be used for the special benefit of the patient, and as the regular charge for board is $5 per week, the pension in some instances exceeds this amount. In all cases it is desirable that at least a portion of the pension should be available for special use of the patient for small purchases which the hospital can not ordinarily supply. It is therefore recommended that the law be so amended as to permit all pensions of patients to be paid to the superintendent while the pensioners are inmates of the hospital, and that he be authorized to use the pension, under regulations established by yourself, for the benefit, first, of any dependent relatives under the law, and second, for the patient himself, the regular charge for board alone being credited to the general fund of the hospital in such cases as may be determined to be proper. The law should also authorize the disposition of such funds accruing from this source in case of deceased pensioners which are unclaimed, and of which a considerable amount is now accumulated.
>
> The Board is also impressed with the necessity for amendment to the law regulating commitment to the hospital and the discharge of patients therefrom. It is particularly important that authority be given the superintendent to grant trial visits before discharge to such patients as are believed to be in condition to warrant it, and also to discharge to the custody of friends such as can be safely cared for outside of a hospital and who can not be further benefited by hospital treatment.

In prior annual reports attention has been called to similar recommendations submitted by the Board of Visitors, and it was urged that legislation be enacted by Congress along the lines indicated. Subsequently there was prepared and transmitted to the proper committees of the Senate and House of Representatives, respectively, a draft of bill (copy of which is hereto appended, page 285, Exhibit K) in relation to the payment and disposition of pension money due to inmates of the Government Hospital for the Insane, which, however, failed to become law; this matter, however, is of such importance in the administration of the affairs of the hospital that it is my purpose to again

submit the bill to Congress for its consideration, and I trust that the measure will receive favorable action by that body.

In discussing the matter of the change in the law relative to disbursements of money for the Government Hospital for the Insane I stated in my last annual report that—

After the decease of the former superintendent a committee was appointed to examine his books and accounts as a disbursing agent of the institution. In reporting thereon, after referring to the fact that his accounts were found to be correct, balanced, and closed, and so reported by the accounting officers of the Treasury, they state, referring to the matter of the disbursements of the institution, that—

"Your committee are of the opinion, however, that the best interests of the public service would be subserved if the disbursement of the appropriations for the hospital was taken therefrom and placed under the direct supervision of the Secretary of the Interior, to be disbursed by the disbursing officer of the Department of the Interior on vouchers properly certified by the superintendent of the hospital, and approved by the Secretary of the Interior. One of the principal reasons advanced why such a change should be made is that the superintendent of the hospital is now the purchasing officer, the receiving officer, the disbursing officer—three offices in one. The act of March 3, 1855 (sec. 4837, Rev. Stat.), made him a special disbursing agent. Under existing United States Treasury regulations he is required to render his accounts monthly, and no advance of funds is allowed him in any month in excess of his bond. On the contrary, the disbursing officer of the Department is required to render his accounts only quarterly, and is not confined to the limit of his bond in advances from the Treasury, so that money could always be promptly obtained from the Treasury for the payment of the bills of the hospital upon presentation of same. Under the present condition of affairs it has often occurred that persons selling goods and supplies to the hospital, expecting to receive cash when such have been furnished, have been compelled to wait weeks and months for payment. This condition of affairs should not be tolerated by the Department for a moment. Business methods prevail in every other branch of the Department of the Interior, and its creditors are promptly paid their bills on presentation of the same. Such should be the rule with the bills against the Hospital for the Insane. The merchant sells his goods to the hospital at a trifle above cost, expecting to receive promptly cash payment for the same. Failure to so pay him frequently results in serious embarrassment to his business."

Concurring in this conclusion, I urgently recommend the incorporation in the sundry civil bill, when it shall receive consideration by Congress, of the following paragraph, to wit:

And hereafter the disbursing clerk of the Department of the Interior is hereby required to act as disbursing clerk for the Government Hospital for the Insane, and to disburse all moneys appropriated for the said hospital, under the direction of the Secretary of the Interior, on vouchers duly certified by the superintendent thereof, and approved by the Secretary of the Interior. And the said disbursing clerk herein provided for shall, before entering upon his duties as such, give bond to the United States in such sum as the Secretary of the Treasury may deem proper and necessary, which bond shall be conditioned that the said officer shall render a true and faithful account to the proper accounting officers of the Treasury quarter yearly of all moneys and properties which shall be received by him by virtue of his office, with sureties to be approved by the Solicitor of the Treasury. Such bond shall be filed in the office of the Secretary of the Treasury, to be by him put in suit upon any breach of the conditions thereof. And for this service to be performed the said disbursing

clerk, hereinbefore provided for, shall receive for the faithful discharge of his duties an annual compensation of $1,000, payable from the appropriation for current expenses of the Government Hospital for the Insane. And all acts heretofore made by Congress that are inconsistent with the provisions of this act be, and the same are hereby, repealed.

The necessity for the change in the law above recommended in regard to disbursements is further evidenced by the fact that in order to prevent embarrassment in the matter of payments, under contract for the work on the extension, to be made from the appropriation of $975,000 for the extension of the Government Hospital for the Insane, it became necessary, on the 10th day of August, 1901, to appoint Mr. George W. Evans, the disbursing officer of this Department, a "special disbursing agent for the erection of an extension at the Government Hospital for the Insane." For the disbursement of these moneys he was required by the Secretary of the Treasury to give an additional bond of $25,000, which was approved on the 18th day of October, 1901.

Immediately after the passing away of Doctor Richardson, on the 27th of June, 1903, a committee consisting of two competent officers, one from the Treasury Department and one from this Department, was designated to examine his books and accounts as disbursing agent of the hospital. The committee, as a result of its examination, reported that his accounts were found to be correct and all public moneys properly accounted for, and in its report embodied, among other things, the following recommendation:

The superintendent is, under the law, the responsible disbursing agent of the institution for these funds, in addition to his other duties. (Sec. 4839, R. S.) In addition to the funds for the support of the institution, the superintendent makes disbursements from the appropriations, "Repairs, Government Hospital for the Insane," and "Buildings and grounds, Government Hospital for the Insane." From a careful inspection and examination of all questions involved in the disbursement of these funds, we are of the opinion that the interests of the service, and particularly of the hospital, would be served should the superintendent be permanently relieved from the responsibility for the disbursement of these funds. Whether they should be disbursed by the disbursing officer of the Department of the Interior or by a special disbursing agent appointed by the Secretary of the Interior, in either case on vouchers properly certified by the superintendent of the hospital and approved by the Secretary of the Interior, is a question worthy of careful consideration. However this may be resolved, there can be no doubt that the superintendent should not be continued as the responsible disbursing agent, as well as the purchasing officer and the receiving officer.

Thereafter the first assistant physician, as heretofore stated, was designated as acting superintendent of the hospital, and the Comptroller of the Treasury, to whom the question was submitted, having decided that it would be practicable for the disbursing officer of this Department to disburse all funds for the hospital until such time as a superintendent and responsible disbursing officer should be appointed, I directed the disbursing officer of this Department to take charge of

all financial matters connected with the Government Hospital for the Insane and to disburse all moneys for that institution. This duty he most satisfactorily performed up to October 1, 1903, when Doctor White qualified under his appointment as superintendent and disbursing officer of the Government Hospital for the Insane, thus clearly demonstrating the entire practicability of the handling and disbursement by the disbursing officer of the Department of all moneys appropriated for the maintenance, improvement, and protection of the Government Hospital for the Insane.

Freedmen's Hospital.

The Freedmen's Hospital was appropriated for and placed under control of the Secretary of War by act of March 3, 1871 (16 Stat. L., 506), and transferred to the Department of the Interior by act of June 23, 1874 (18 Stat. L., 223). The supervision and control of expenditure of appropriations was transferred to the Commissioners of the District of Columbia by act of March 3, 1893. (27 Stat. L., 551.) The appointive and general administrative power, however, is still vested in the Secretary of the Interior.

The report of the surgeon in chief of the hospital, W. A. Warfield, shows that there has been an increase in the volume of work in every department, more patients having been treated in the hospital and dispensary than in any previous year. The whole number of patients in the hospital during the year was 2,789, of which number 2,677 were admitted, including 191 born in the hospital. One hundred and twelve were remaining in the hospital June 30, 1902. During the year 2,659 were discharged, leaving 130 in the hospital July 1, 1903.

The number treated in the out-patient department was 6,259, an increase of 862 over the preceding year. In this department 10,605 prescriptions were compounded and 1,114 revisits were made.

The total number of patients treated in the hospital and dispensary attached was 9,048, divided as follows: 265 white males, 76 white females, 4,120 colored males, and 4,476 colored females.

In the surgical department 670 operations were performed, many of which were of a major character. Six deaths occurred in this department, most of them occurring weeks after the operation.

There were 1,315 examinations made in the pathological department, and 22 post-mortems were performed.

Of the 205 deaths, 22 died within twenty-four hours after entering the hospital and 15 within 48 hours, while 3 deaths occurred before the patients reached the ward, indicating that in many instances the patients do not come to the hospital until their cases are hopeless.

Of the 2,677 patients admitted, 2,269 were actual residents of the District of Columbia—that is to say, they had resided in the District

more than one year; the remaining 408 lived in the District less than one year and are regarded as nonresidents.

The rules governing admission to the hospital are as follows, to wit:

(1) Indigent residents of the District of Columbia who, being sick or injured and requiring medical or surgical attention, are without the necessary means to pay for the same.

(2) Transient population of said District who, while passing through or temporarily domiciled therein, fall ill or suffer accident or injury and require immediate medical or surgical care and attention, but are destitute of means to pay for the same.

(3) Such other destitute persons residing outside the District of Columbia as the Secretary of the Interior, either for humane reasons or in the interest of medical science, shall cause to be admitted.

(4) All emergency cases, which are defined as cases of sudden illness or injury, where to delay treatment would unduly imperil the life or safety of the patient.

The surgeon in chief expresses the opinion that, as the General Government bears one-half the expenses of the maintenance of the hospital, it would be just and equitable to admit a larger number of persons from the States, and to that end suggests a modification of the rules.

The training school for nurses has done better work than in any preceding year. Two hundred and thirty-seven applications were received during the year for admission to the school; 17 were accepted, 1 dismissed; 15 nurses graduated in May, 1903. The appendix to the report contains interesting information regarding the requirements exacted of the candidates desiring to enter the course of training and the work accomplished.

During the last session of Congress provision was made in the sundry civil act of March 3, 1903 (32 Stat. L., 1113), for the construction of a new Freedmen's Hospital building and accessories, and requiring, among other things, the trustees of Howard University to supply all medical and surgical service at the hospital without cost to the United States or the District of Columbia.

The surgeon in chief in discussing the effect of this legislation states that—

Lack of suitable buildings has long handicapped the progress of the work here. The law, however, as it now stands in regard to this new hospital, further complicates the management; instead of unifying, it multiplies. A dual management is bad enough, but a triple one is a thousand times worse and visionary. I am of the opinion that the interests of the hospital will be best preserved by embodying all authority in a single head. Experience proves that a divided jurisdiction tends to embarrassment and disorder. In securing future legislation for this hospital, supervision, both fiscal and administrative, should be unified and placed under the Interior Department, with one responsible head and such administrative assistants as the volume of the work to be done may require; and, too, the national aspect which this institution has always presented, a fact which the whole course of legislation in connection herewith indicates, should not be forgotten in any contemplated change. Great good has been accomplished here in the past along this line, and I doubt the wisdom and justice of any step calculated to limit the work and usefulness of this hospital.

In the act of Congress approved July 1, 1902, making appropriations for the expenses of the government of the District of Columbia, and for other purposes, during the fiscal year ended June 30, 1903 (32 Stat. L., 612), the sum of $54,000 was appropriated for the management of this hospital, one half of which, under existing laws, is payable from the funds of the District of Columbia, the other half being paid by the United States. The dual control of this hospital still continues, the expenditure of the funds appropriated by Congress for its management being under the control of the Commissioners of the District of Columbia, and the appointive and chief administrative authority being vested in the Secretary of the Interior. Without doubt better administrative results would be secured by a unification of the supervisory authority of this hospital, both fiscal and administrative.

The board of visitors to this hospital in their report as to an inspection of the institution, among other things, stated that —

> experience shows that a liberal proportion of those admitted to the hospital as being from the District of Columbia were not bona fide residents of the District of Columbia, not having perfected a residence here, but representing themselves as such so as to secure the privileges and benefits of the hospital. Such information has in most cases been secured from the patients themselves after their admission and when it would be inhuman to remove them. We mention this by way of emphasizing the fact that the bulk of the patients treated in the hospital are not residents of the District, as has been intimated sometimes in support of the plea that this hospital should become an annex of the Municipal Hospital of the District, because its patients are largely from the District.

As long as this hospital is continued as an independent institution, caring very largely for colored and other indigent transients, the justice of imposing upon the District the onerous duty of defraying one-half of its expenses is very questionable. I therefore renew the recommendations made in prior annual reports, that existing law be so amended as to provide that the whole expense of the maintenance of Freedmen's Hospital and Asylum be borne by the United States, and that the Commissioners of the District of Columbia be authorized to enter into a contract with the Secretary of the Interior for the care, at such rate per capita as may be determined upon, of all persons from the District admitted to the hospital for treatment.

Appended hereto, page 284, Exhibit J, is a form of a bill in accord with these recommendations. It is substantially a duplicate of House bill No. 10372, which passed the House of Representatives on the 24th of February, 1902, but failed to become a law.

Howard University.

Howard University was established by the act of March 2, 1867, "for the education of youth in the liberal arts and sciences." It is managed by a board of trustees, on which Congress is represented by one Senator and two Representatives, and is supported in part by

funds from benevolent societies and in part from appropriations by Congress. No tuition is required, except in the medical department, where the rate is $80 a year, and in the law department there is a matriculation fee of $10. Room rent is $18 a year, including steam heat, and board is $9 a month. There being no appropriation therefor, students in all departments have to provide their own text-books.

The report of the acting president, Rev. Teunis S. Hamlin, D. D., states that Rev. J. E. Rankin, D. D., resigned the presidency February 24, 1903, on account of advancing age and failing health, after having served the university thirteen years. On the same day Doctor Hamlin was chosen acting president. At the annual meeting of the trustees, on May 27, 1903, Rev. John D. Gordon, D. D., president of Tabor College, Iowa, a ripe scholar and an experienced educator, was chosen as president, and he has accepted, to take effect September 15.

The aggregate number of students in attendance has been greater than ever before, the number who entered the different departments during the year being 866 (exclusive of 265 in the music department and the practice school), from 40 different States and Territories and 10 foreign countries.

There are seven practical working departments connected with the University: The college of arts and sciences, where the students are classified, as in other American colleges, and in which 47 students were entered during the year; the teachers' college, for the study of educational science and the training of teachers, 146 students, among whom are a number of teachers in the public schools of Washington; the Commercial (formerly the English) department, which is designed to fit students for intelligent citizenship and practical business, 142 students; the preparatory school, which fits pupils for any of the three preceding departments, 166 students. There is, besides, a practice school, which forms the laboratory of the teachers' college.

In the medical department, which includes dental and pharmaceutical courses, 231 students were enrolled during the year, besides 30 who entered the nurses' training school.

In the theological department, which receives no aid from Congress, 71 students were entered. The attendance has been larger than ever before and the standard of scholarship has been rising. Various denominations are represented among the students and teachers, and all work in harmony. Graduates are frequently called to responsible positions throughout the country.

In the law department, where the branches taught are the same as in other law schools in the city of Washington, 82 students were entered during the year. The president states that the work done by both teachers and pupils has been careful and thorough; but better preparation before entering upon professional study is greatly needed.

There is also an industrial school, which for the present is attached

to the commercial department, though it is open to students of all departments. Carpentry, printing, tinning, and sewing are taught in this school.

At the annual meeting of the trustees a committee was appointed to revise the courses and work of the university. The committee's report, which was unanimously adopted by the board of trustees and is embodied in the annual report of the acting president, recommends extensive and important changes in the courses and work of the university, as well as in administrative methods. Among other subjects under consideration was the establishment of an adequate industrial equipment for the university, and the acting president was requested to ask Congress for an appropriation sufficient to provide the institution with a large, thorough, and modern industrial equipment, to be administered in subordination to and close affiliation with the other departments of the university. A resolution was also adopted providing that all moneys coming to the university from any source, or to any of the officers for the benefit of the university or any department thereof, should go into the treasury of the university and be appropriated only by the action of the board of trustees or the executive committee. A committee of two trustees on the work of each department was also provided for, whose duty it should be to visit and inspect their respective departments and report the condition thereof at the end of the year. Prompt steps have been taken to carry into effect the various changes decided upon by the trustees, and a decided advance in the efficiency of the university is anticipated. The report states that increased Congressional appropriations will be necessary to provide additional teaching force and adequately compensate teachers of experience and proved merit.

By the act of June 28, 1902 (32 Stat. L., 457), appropriations aggregating $42,100 were made for the maintenance of the university, including salaries of officers and teachers, expenses of industrial departments, building and grounds, books and scientific apparatus. The statement of the treasurer shows the manner in which these appropriations have been expended. Under this appropriation steam-heating plants have been installed in Clark and Miner halls, at a cost of $5,500—the amount allotted by the act for the purpose. The treasurer's statement also shows the amount of money received from all sources during the year, together with the amount disbursed, and the condition of the several endowment and scholarship funds of the university.

At the last session of Congress provision was made for the construction of a new Freedmen's Hospital building and accessories, in the sundry civil act approved March 3, 1903, to wit:

FREEDMEN'S HOSPITAL: For the construction of a new Freedmen's Hospital buildings and accessories on the ground now occupied by the Freedmen's Hospital, fifty

thousand dollars, said buildings to be constructed upon plans to be approved by the Supervising Architect of the Treasury and the Superintendent of the Capitol Building and Grounds, and sufficient when completed to provide for not less than two hundred patients; and the Secretary of the Interior is authorized to enter into a contract or contracts for the construction of said buildings at a cost not exceeding three hundred thousand dollars, which sum, including the amount herein appropriated, shall be paid one-half out of the Treasury of the United States and one-half out of the revenues of the District of Columbia: *Provided*, That before any portion of the sum herein appropriated shall be expended, the proper authorities owning the ground upon which said buildings are to be erected shall lease the same to the Government of the United States at an annual rental of one dollar per annum during the period of their occupation of the same: *Provided further*, That the trustees of Howard University shall be required to supply all medical and surgical service without cost to the United States or the District of Columbia.

Preliminary to entering into a contract with the Howard University for the leasing of the ground occupied for purposes of the hospital, the university was called upon to furnish evidence as to its title thereto, and the board of visitors of the Freedmen's Hospital and Asylum was directed to make a personal inspection of the grounds occupied by the hospital with a view to determining whether there was sufficient land to properly accommodate the hospital to be constructed under the terms of the act, and this board reported that, in its judgment, a suitable hospital, such as is contemplated by the statute, would necessitate the use of the entire tract of land now leased by the Commissioners of the District for the purposes of the hospital.

The Howard University was unable to satisfy the Department that it could convey a perfect title to the entire parcel of land, and therefore it was not practicable for the Department to enter into any contract with that corporation for the leasing of the land desired.

Subsequently a committee of the board of trustees of the university had a conference at the Department in regard to the status of the matter, and as a result thereof submitted, under date of October 26, 1903, the following proposition:

Serious doubt having arisen whether the ground owned by this university, and now occupied by the Freedmen's Hospital and its accessories, offers a site sufficiently large upon which to erect a modern hospital of two hundred beds, as provided for in the sundry civil bill approved March 3, 1903, also whether a perfect title can be conveyed to the entire parcel, the undersigned, a committee of the board of trustees of this university, empowered by the board to act in this matter, most respectfully submit the following:

"The parcel of unimproved land lying between Sixth and Fourth streets and between Pomeroy and College streets, and containing approximately 11 acres, was by act of June 16, 1882 (22 Stat. L., 204), ceded by the university to the United States in consideration of taxes accrued and of future taxes to be remitted; also upon condition that it should be made and maintained as a public park. This condition has never been complied with and, although repeated applications have been made to the Government to act, the land now lies as at the date above named.

"At about the same time and for the same reason, the Georgetown College paid to the United States the sum of $30,909.27, which was refunded on September 26, 1878, to the president and directors of that college for taxes paid for the years 1873, 1874,

1875, 1876, 1877, and 1878, said refund being under authority of the act of June 11, 1878, providing a permanent form of government for the District of Columbia, and the act of the legislative assembly of January 19, 1872, section 14, providing for the refundment of erroneously paid taxes.

"We beg to ask if you will favor an application by this (Howard) university to the Congress to retrocede to the university the parcel of ground hereinbefore named, upon condition that the university shall lease the same in perpetuity to the United States at $1 per year for the purposes of the Freedmen's Hospital, to be built thereon according to the terms of the provision of the sundry civil bill above named, and the entire parcel to be kept free from all other buildings and from occupancy for any other use, and to be devoted to the use of the said Freedmen's Hospital and its necessary appurtenances. The provision as to remission of taxes to continue in force."

I approve the foregoing suggestion of the representatives of the trustees of the Howard University, and recommend the enactment of legislation looking to the retrocession to that corporation of the land described and its use on the conditions indicated for the purposes of the Freedmen's Hospital.

Columbia Institution for the Deaf and Dumb.

The report of Dr. E. M. Gallaudet, president of the Columbia Institution for the Deaf and Dumb, made pursuant to the requirements of the act of February 16, 1857 (11 Stat. L., 161), shows that the pupils remaining in the institution July 1, 1903, numbered 116; admitted during the year, 43; since admitted, 43; total, 202. Under instruction since July 1, 1902, 128 males and 74 females. Of these, 130 have been in the college department, representing 31 States, Canada, and Ireland, and 72 in the primary department. Of these, 47 were admitted as beneficiaries from the District of Columbia, and 89 have been admitted to the collegiate department under the provisions of the acts of Congress approved August 30, 1890, and June 6, 1900.

General good health has prevailed among the students and pupils during the year.

The courses of study in the several departments are continued, as heretofore, with some additional prominence given to technical instruction. Four recent graduates of the college have pursued successful courses of study in the Massachusetts School of Technology, the Georgia School of Technology, the Washington University, of St. Louis, and the University of the City of New York.

Experiments have been continued with the akoulalion, an instrument calculated to increase the hearing power of those who are very deaf, but no additional developments worthy of special mention have as yet been made.

Eighteen young men and young women were graduated in June from the college. These have pursued regular courses leading to the degrees of bachelor of arts, bachelor of science, bachelor of philosophy, and bachelor of letters.

The total receipts of the institution from all sources amounted to $82,594.76, of which $76,791 was appropriated by the United States, and $5,803.76 was received for board, tuition, etc.

The expenditures were $75,883.07 for current expenses, with $3,000 for special repairs, and $3,291 to provide additional fire protection to the buildings of the institution.

The estimates for the fiscal year ending June 30, 1905, are:

For the support of the institution, including salaries and incidental expenses, for books and illustrative apparatus, and for general repairs and improvements, $70,500.

For repairs to the buildings of the institution, including plumbing and steam-heating apparatus, and for repairs to pavements within the grounds, $3,000.

For additions to the buildings of the institution, to furnish additional accommodations for pupils, and to provide for the heating of the buildings from a central plant and for lighting the buildings by electricity, $30,000.

An estimate of $1,500 is also submitted as a deficiency for the current fiscal year, this having arisen in consequence of certain repairs having been found to be imperatively necessary.

Maryland School for the Blind.

Under section 2 of the act of Congress approved May 29, 1858 (11 Stat. L., 294), the Secretary of the Interior is authorized to place for instruction in an institution for the blind, in the State of Maryland or some other State, the indigent blind children of teachable age who are children of persons actually engaged in the military and naval service of the United States, and under section 4869 of the Revised Statutes the indigent blind children of teachable age belonging to the District of Columbia.

The report of Dr. F. D. Morrison, superintendent of the institution, shows that in pursuance of this authority there were, at the close of the fiscal year 1902, 26 blind children under instruction in the Maryland School for the Blind, at Baltimore, Md. Since that time 6 pupils have been admitted, 2 have withdrawn, and 1 has been absent part of the year by permission of the Secretary of the Interior, leaving 29 beneficiaries at the institution on the 30th of June, 1903. The pupils remaining under instruction are of average intelligence and are making satisfactory progress. These pupils range from kindergarten to the grammar school grade.

The course of instruction is practically the same as is given in schools of like grade for sighted children, with this addition, thorough instruction is given in music, and also such mechanical or handicraft work as has been found to be of practical use to blind persons, as piano tuning, mattress making, sewing, and knitting.

The school is equipped with books, physical apparatus, musical instruments, typewriters, sewing machines, etc. Special attention is given to the proper physical development of the pupils. The teachers are experienced and capable, and the course of training has been planned to give the pupils a practical English education. The total amount expended during the year for the care and maintenance of the indigent blind children of the District of Columbia was $8,237.49, one half of which amount is paid from the revenues of the District of Columbia and the other half out of the Treasury of the United States, pursuant to the act of Congress approved March 3, 1899 (30 Stat. L., 1101). The total amount expended during the fiscal year ended June 30, 1902, was $7,399.99.

Washington Hospital for Foundlings.

The act of April 22, 1870 (16 Stat. L., 92), placed this institution under the care of a corporation, to carry into effect that provision in the last will and testament of Joshua Pierce, devising to certain trustees 14 parcels of land in the city of Washington, D. C., to be held as a site for a hospital for the reception and care of destitute and friendless children. It is specifically provided by the act that foundlings received by this hospital shall be deemed and considered wholly under the guardianship, care, and control of said institution, to be educated, apprenticed, or otherwise disposed of in such manner as the directors of said hospital may, in their judgment, deem for the best interests of said children until they shall attain the age of 18 years, when said care and control shall cease. The institution is managed by a board of directors, who are required to report annually to the Secretary of the Interior, and is maintained in part by contributions from benevolent persons and societies and in part by Federal appropriations.

The report of the board of directors shows that 95 children were provided for during the fiscal year ended June 30, 1903, of which number 29 were remaining in the institution from the previous year.

There were 12 adoptions during the year, and 36 deaths recorded. Of the latter 29 were under 6 months of age, 5 were under 9 months, 1 under 1 year, and 1 over 1 year, leaving 46 remaining at the hospital at the end of the fiscal year 1903.

Including a balance of $211.31 from last year the total receipts from all sources were $8,782.97, of which amount $8,476.79 was expended in the operations of the institution, leaving a cash balance on June 30, 1903, of $306.18.

The daily average of children is about 36. Since the hospital was opened in 1887 there have been 211 little ones adopted into happy homes, where they will be trained to become useful men and women. This is considered the best and most satisfactory work of the institution.

Owing to lack of funds the board is again compelled to ask a continuance of the annual appropriation of $6,000, in order to carry on the work of the institution.

I most heartily approve of this charity and recommend that Congress appropriate the funds desired, that the work of the hospital may be properly continued.

THE SUPERINTENDENT OF THE UNITED STATES CAPITOL BUILDING AND GROUNDS.

The heating, ventilating, and lighting systems are the vital parts of the organization of the Capitol, which contains 430 rooms, devoted to office, committee, and storage purposes. The building is provided with 18 motors, 8 elevators, 2,048 horsepower of boilers for heating and lighting, 8 steam pumps for boiler and fire service, 15 ventilating fans, lighting service equivalent to 25,000 incandescent lamps of 16 candlepower each, and 14,518 square feet of skylights.

The new system of ventilating for the House of Representatives has been so satisfactory that not a single complaint has been made against it during the year.

The lighting system for the building and grounds has given excellent service during the year, and many extensions have been made. Where the wiring is bad, from years of service, arrangements have been made for new wiring.

The repairs to the system of elevators and motors, boilers and engines have been largely made by the forces employed, and the work performed with marked fidelity and interest, though often at inconvenient and extra hours.

Various improvements have been conducted in the office laboratory, under the supervision of the Superintendent, assisted in some cases by the United States Marine-Hospital Service, looking to the improvement of conditions throughout the building, especially in the examination and testing of air supplied by the ventilating system.

The grounds are much improved, the lawns having been sodded where shade prevented the grass from growing; the artificial-stone pavement has been repaired, and the Maryland avenue entrance to the grounds renewed to conform to the new street pavement.

The interior surface of the entire area of the new roof has been plastered, and the old Library space fitted for occupancy by the Senate library; wooden shelving, coated with fireproof paint, has been installed and the documents placed. The office room of the Senate library has been fitted with steel shelving and a marble floor substituted for the brick floor.

A new fireproof roof has been placed over the Dome vestibule at the south of the Rotunda; 3 new skylights have been installed in the new

roof west of the Dome, 3 north of the Dome, and 2 in the new roof over the light shafts at the north and south of the new committee-room section, center building.

The House document room has been refitted with steel shelving, tables, stairway, and new floor of terazza. Decorations on the ceilings of the House lobby have been continued and the tile floor is being replaced with marble. In repairing the basement floors of the old part of the building care has been taken to replace them exactly as they were, in order to preserve the old Capitol in its original state. The floors are of stone flagging.

Important additions have been made to the Senate restaurant, a new steam serving counter and new coffee urns having been installed. This materially improves the service, preventing loss of time formerly incurred by means of the dumb-waiter.

Mahogany doors have been placed in the doorways facing the principal corridor surrounding the Hall of the House. The principal entrances to the basement floor have been supplied with mahogany fly doors, and a new vestibule, with doors, installed at the principal west entrance, center building.

The entire center section of the Capitol building being constructed of sandstone, and the Dome of iron, require painting every few years to make them conform in color to the marble of the wings. This has been completed to the base of the statue of Freedom.

The statue of Freedom, which is of bronze, instead of having the peculiar shade of green desirable in works of art in bronze, was found to be covered with a coating almost white, but it was also discovered that beneath this coating, which could be easily removed, the desired color remained. The statue was accordingly cleaned, and the iron pedestal upon which it rests was painted to correspond in color.

Extensive repairs have been made to the engine house, Senate and House stables—new sewerage system, concrete floor, new roof, and electric lights installed, and other minor repairs. The old carpenter and tool shops at South Capitol and B streets have been torn down and new buildings erected. Extensions and additions to the engineer's office, Capitol grounds, and to the testing laboratory have been made and erected. The laboratory extension is designed for use in connection with the construction of the proposed new office building for the House of Representatives.

At the Botanic Garden improvements and repairs have been made to the main conservatory and the plant and propagating houses.

The court house of the District of Columbia has been repaired, new floors have been laid, and the roof and walls of the open court have been painted.

The expenditures for the fiscal year ended June 30, 1903, were as follows: Annual repairs of the Capitol, $58,750; lighting the Capitol

and grounds, $42,500; improving the Capitol grounds, $20,000; refitting document room, House of Representatives, $17,500; repairs to the engine house, Senate and House stables, $1,500; carpenter and tool shops, $9,230; repairs to court house of District of Columbia, $2,000.

By sundry civil act of March 3, 1903 (32 Stat. L., 1113), a commission, to be appointed by the Speaker was provided for with the view to acquiring a site for and to direct and supervise the construction of an office building for the House of Representatives.

On March 9, 1903, the commission, composed of Hon. J. G. Cannon, Hon. W. P. Hepburn, and Hon. J. D. Richardson, advised the Department that they had determined upon square No. 690 for such purpose, bounded as follows: On the east by First street SE., on the south by C street SE., on the west by New Jersey avenue SE., and on the north by B street SE.

Accordingly, on March 11, 1903, the honorable Attorney-General was advised of the above action and requested to make application to the supreme court of the District of Columbia pursuant to the provisions of the act of July 1, 1898, which was provided for in the above-mentioned act of March 3, 1903, for the institution of proceedings to condemn square No. 690, above referred to.

Subsequently proceedings for such purpose were instituted by the United States attorney for the District of Columbia by action No. 597 in equity, in special term of the supreme court of the District of Columbia, for condemnation of the site in question, and commissioners were thereupon appointed by the court to hear testimony concerning the value of the different lots of said square and the improvements thereon, who afterwards submitted their report to the court awarding $743,354.05 in payment for land damages.

On September 29, 1903, the Department was informed of the result of the inquiry on the part of the commissioners appointed by the court and subsequently furnished with a report of the commissioners and the testimony and plats used by them in arriving at their conclusion.

The honorable Attorney-General, under date of November 5, 1903, was advised that the values of the several pieces or parcels of land in said square, as determined by the commissioners appointed by the supreme court of the District of Columbia, were reasonable, and inclosed therewith, for presentment to such court, the following statement:

I, Ethan Allen Hitchcock, Secretary of the Interior, having examined the report of the commissioners appointed in the above-entitled cause to appraise the values of the several pieces or parcels of land, and the improvements thereon, to be acquired under the provisions of the act of March 3, 1903 (32 Stat. L., 1113), as a site for the construction of a fireproof building for committee rooms, folding rooms, and other offices of the House of Representatives, and the appraisement of the said values, as returned by the said commissioners to the court, do certify that, in my judgment, said appraisement is reasonable.

On the 25th day of November, 1903, the supreme court of the District of Columbia confirmed the assessment of the commissioners, and on the 28th of November the Department submitted the case to the Attorney-General for an expression of his views as to the sufficiency of the title to the several parcels of land embraced in square 690 as preliminary to the making of a requisition upon the Secretary of the Treasury for the payment into court of the condemnation price of the property.

LOUISIANA PURCHASE EXPOSITION.

The act of March 3, 1901 (31 Stat., 1440), provides for celebrating the one hundredth anniversary of the purchase of the Louisiana territory by the United States by holding an international exhibition of arts, industries, manufactures, and the products of the soil, mine, forest, and sea, in the city of St. Louis, in the State of Missouri.

Of the appropriation for the Government exhibit $69,000 was allotted to this Department. The chief clerk of the Department, Edward M. Dawson, is the representative of the Secretary of the Interior on the board of management of the Government exhibit. One thousand two hundred and seventeen square feet have been assigned in the Government building for the use of this Department, its bureaus and offices, and the exhibit to be installed and maintained therein has been so planned as to represent as far as possible the operations of the different bureaus and other branches of the Department and the administrative and other results attained.

Special appropriations have been made as follows: Forty thousand dollars for an Indian school exhibit illustrating the progress of the Indians along educational lines; $25,000—an equal amount to be collected by the citizens of the Indian Territory—for the installation and maintenance of an exhibit of the industries, etc., of the Indian Territory, and $50,000 for the construction of a building and maintenance therein of an exhibit of the industries, etc., of Alaska. The supervision, collection, and installation of exhibits for the Indian Territory and the district of Alaska is in charge of the First Assistant Secretary, Thomas Ryan, who has appointed F. C. Hubbard as executive commissioner for Indian Territory, and Governor John G. Brady, for the District of Alaska, who, respectively, have active charge of the exhibits. Work under these exhibits is well under way, and they will doubtless be ready at the opening of the fair in 1904.

THE COLUMBIA RAILWAY COMPANY OF WASHINGTON, D. C.

The vice-president reports, in pursuance of the requirements of section 16 of the act of May 24, 1870 (16 Stat. L., 132), that the capital stock of the company on December 31, 1902, was $400,000; that

the par value of the shares was $50. The number of shares subscribed for up to that date was 8,000, of which 7,993 shares were held by the United States Mortgage and Trust Company, as trustee, and the remainder by individuals.

The vice-president further reports that under the provisions of the act of Congress approved June 5, 1900 (31 Stat. L., 270), entitled "An act relating to certain railway corporations owning or operating street railways in the District of Columbia," the company was authorized to sell all of its physical property, and acting under this authority, on or about the 1st day of February, 1902, deeded all its property to the Washington Railway and Electric Company as owner of said property and of other street railway property in the District of Columbia; that the latter company operates the same jointly, and it is therefore impracticable to make an independent report of the receipts, expenditures, etc., of the Columbia Railway Company. . . . . .

THE MARITIME CANAL COMPANY OF NICARAGUA.

Section 6 of the act of Congress approved February 20, 1889, entitled "An act to incorporate the Maritime Canal Company of Nicaragua," provides that said company shall make a report of its operations on the first Monday of December in each year to the Secretary of the Interior. . . . . .

The report of this corporation, I am advised, is in preparation, and will be transmitted to the Department within the time prescribed by law. Upon receipt thereof it will be duly forwarded to Congress.

All of which is most respectfully submitted.

ETHAN ALLEN HITCHCOCK,
Secretary.

The PRESIDENT.

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PAPERS

ACCOMPANYING

THE REPORT OF SECRETARY OF THE INTERIOR.

REPORT OF COMMISSIONER OF GENERAL LAND OFFICE.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
Washington, D. C., September 21, 1903.

SIR: In submitting the annual report of this Office for the fiscal year ended June 30, 1903, I have to state that the business of the Office shows a marked increase over the year 1902, the total receipts being $11,024,743.65, an increase of $4,762,816.47 over the preceding year, and this increase over 1902 is greater than the total receipts for the year 1899.

The total area of public land appropriated during the year was 22,824,299.65 acres, an increase of 3,335,764.35 acres over the preceding year.

The business of the Office is being kept up as well as possible with the present force, but land entries of all kinds and land contests can not be reached for examination or decision until about one year after their receipt in this Office. The party who makes a mineral, final homestead, or other entry should not be compelled to wait a year or more before receiving a patent for the land, and to obviate this necessity and to relieve this arrearage in the work I have included in my annual estimates an increase in force of 2 examiners of mineral claims and contests and 16 clerks, and it is believed that if this increase of force is granted to the Office that material headway can be made toward bringing the work up to date. The large increase during the last two or three years in original homesteads and the great activity in all kinds of land matters throughout the West, as indicated by the reports from the various local land offices, shows that there will probably be a larger amount of work coming before this Office for several years to come than at the present time.

The following is a statement of the acreage disposed of during the fiscal year ended June 30, 1903:

CASH SALES.

	Acres.
Private entries	28,899.40
Public auction	59,058.54
Preemption entries	14,200.57
Timber and stone entries	1,765,222.43
Mineral-land entries	97,046.64
Desert-land entries (original)	1,025,825.77
Excesses on homestead and other entries	22,676.71
Coal-land entries	38,007.88
Town sites	1,111.02
Supplemental payments	5.34
Abandoned military reservations (act August 23, 1894)	1,033.28
Under sundry special acts	20,809.41
Total	3,073,896.99

MISCELLANEOUS.

	Acres.	Acres.
Homestead entries (original)	11,193,120.25	
Timber-culture entries (original)	316.18	
Entries with—		
Military bounty land warrants	26,821.08	
Agricultural college scrip	1,438.28	
Private land scrip	9,954.13	
Valentine scrip	162.86	
Wyandotte scrip	80.00	
Porterfield scrip	40.00	
State selections	1,515,291.23	
Railroad selections	3,864,182.24	
Wagon-road selections	41,183.51	
Indian allotments	6,578.20	
Small holdings	7,357.67	
Donation act	757.59	
Swamp lands patented	2,909,747.88	19,577,031.10
Total area of public land entries and selections		22,650,928.09

INDIAN LANDS.

Cherokee	519.14	
Klamath Indian reserve	723.61	
Southern Ute	16,487.38	
Ute	48,630.27	
Osage trust and diminished reserve	14,082.07	
Kansas trust and diminished reserve	301.68	
Chippewa	2,383.98	
Flathead	160.00	
Omaha	1,120.17	
Umatilla	80,543.07	
Sioux	81.40	
Uinta and White River Ute lands	176.65	
Colville Indian reserve	8,162.14	173,371.56
Grand total		22,824,299.65

RECAPITULATION.

	Acres.
Area sold for cash	3,073,896.99
Area miscellaneous entries	19,577,031.10
Area Indian lands	173,371.56
Aggregate	22,824,299.65

Showing an increase of 3,335,764.35 acres as compared with the aggregate of disposals for the fiscal year 1902.

The foregoing statement does not include the following entries, the areas of which have been previously reported in the original entries of the respective classes:

	Acres.
Final desert-land entries	264,533.62
Homesteads commuted to cash	2,194,991.69
Timber-culture entries commuted under act March 3, 1891	1,320.00
Supplemental payments	120.00
Cash substitutions	1,398.23
Abandoned military reservations	4,642.10
Act March 3, 1887	160.00
Final homestead entries	3,576,964.14
Final timber-culture entries	176,203.23
Military bounty land warrants	1,075.90
Private land scrip	1,085.23
	6,222,494.14
Commuted homestead entries, Indian lands	69,032.26
Final desert entries, Indian lands	8,622.11
Total	6,300,148.51

The number of filings and fees thereon will be found in the following table:

	Number.	Fees.
Preemption, declaratory statement	371	$1,082
Homestead, soldiers' declaratory statement	948	2,060
Coal land, declaratory statement	3,290	9,695
Reservoir, declaratory statement	1,377	2,877
Valentine scrip applications	5	5
Mineral-land applications	1,980	19,800
Timber and stone applications	12,334	123,340
	20,305	158,859
Mineral adverse claims	324	3,240
Total	20,629	162,099

Miscellaneous fees:

For reducing testimony to writing, etc	114,760.92
For cancellation fees	4,047.00
Aggregate of fees	280,906.92

CASH RECEIPTS.

The following is a statement of the cash receipts of the office from various sources during the fiscal year ended June 30, 1903:

Sales of land at private entry	$36,577.36
Sales of land at public auction	90,747.07
Sales of land by preemption entry	18,030.86
Sales of timber and stone land	4,413,911.91
Sales of mineral land	371,483.37
Sales of desert land (original)	256,447.45
For final desert land	264,532.15
For commuted homesteads	2,874,793.37
For timber-culture entries commuted under act of March 3, 1891	1,650.00
For excesses on homestead, timber-culture, and other entries	32,578.59
For sales of coal lands	498,997.00
For sales of town sites	2,355.65
For sales of town lots	1,040.00
Interest payments on commuted homesteads	7,838.42
Excess payments on agricultural college selections	300.00
For competitive bids	193.00
For supplemental payments	172.35
Cash substitutions	1,935.19
Sales of abandoned military reservations	14,370.97
Sales under sundry special acts	72,516.47
Total	8,960,471.18

FEES AND COMMISSIONS.

For homestead entries (original and final)	$1,233,712.52	
For timber-culture entries (original and final)	4,640.57	
For entries with—		
Military bounty land warrants	712.00	
Agricultural-college scrip	32.00	
Valentine scrip	5.00	
Porterfield scrip	1.00	
For State selections	19,868.00	
For railroad selections	48,478.00	
For lands entered under the donation act	25.00	
For commissions on commuted homesteads (Indian ceded lands)	8,244.71	
For preemption, coal, reservoir, and other filings	158,859.00	

For mineral adverse claims	$3,240.00	
For cancellation notices	4,047.00	
For reducing testimony to writing, etc	114,760.92	$1,597,147.48
Total receipts from disposal of public lands		10,557,618.66
Total receipts from disposal of Indian lands		308,939.14
Total receipts from depredations on public lands		95,251.31
Total receipts from sales of timber under acts March 3, 1891, and June 4, 1897		31,966.24
Total receipts from sales of Government property (old office furniture)		849.82
Total receipts for furnishing copies of records and plats		30,118.48
Grand total		11,024,743.65

The total cash receipts for the fiscal year 1902 were $6,261,927.18, showing an increase in receipts for the year ended June 30, 1903, of $4,762,816.47.

The total expenses of district land offices for salaries and commissions of registers and receivers, incidental expenses, and expenses of depositing public moneys during the fiscal year ended June 30, 1903, were $828,862.62, an increase of $10,364.02.

The aggregate expenditures and estimated liabilities of the public land service, including expenses of district land offices, as stated, were $1,923,624.16, leaving a net surplus in the United States Treasury of $9,101,119.49.

Amounts covered into the Treasury to the credit of the reclamation fund from the sales of public lands and fees and commissions in the several States and Territories during the fiscal years 1901, 1902, and 1903, under the provisions of the Act of Congress approved June 17, 1902 (32 Stat., 388).

States and Territories.	1901.	1902.	1903, approximately.	Aggregate, approximately.
Arizona	$ 42,586.16	$ 39,187.35	$ 43,831.82	$ 125,605.33
California	205,030.40	298,240.36	783,849.10	1,287,119.86
Colorado	254,889.88	374,105.13	510,072.44	1,139,067.45
Idaho	206,645.36	300,803.27	642,218.52	1,149,667.15
Kansas	20,188.78	28,946.94	18,417.44	67,553.16
Montana	367,342.31	405,035.49	552,163.41	1,324,546.21
Nebraska	102,963.24	132,234.94	118,838.64	354,036.82
Nevada	9,183.47	14,230.61	12,465.23	35,879.31
New Mexico	75,203.06	72,034.60	150,127.70	297,365.36
North Dakota	449,474.96	778,021.35	1,228,843.89	2,456,340.20
Oklahoma	370,464.93	638,330.44	816,086.57	1,824,881.94
Oregon	364,988.62	545,972.44	1,884,729.83	2,795,690.89
South Dakota	113,274.20	194,288.17	239,420.59	546,982.96
Utah	98,416.00	48,408.38	87,519.66	234,344.04
Washington	257,180.95	536,907.82	1,099,980.42	1,894,069.19
Wyoming	206,989.59	178,773.24	272,923.64	658,686.47
Total	3,144,821.91	4,585,520.53	8,461,493.90	16,191,836.34

PATENTS ISSUED DURING THE FISCAL YEAR ENDED JUNE 30, 1903.

There were 54,365 patents of all classes issued during the year. Of this number, 47,654 are classed as agricultural, 4,904 Indian allotments, 1,104 mineral patents, 200 coal patents, 276 private land claims, 187 railroad patents, and 40 swamp-land patents. This is an increase of 6,663 over the agricultural patents issued during the preceding year.

Railroad patents.—During the year there were certified and patented under the several land grants, for the construction of railroads and wagon roads, 5,816,957.04 acres, an increase of 808,825.38 over the preceding year.

Swamp patents.—There were 2,909,747.88 acres of swamp lands patented to the various States during the year, an increase of 2,821,109.13 acres over the preceding year.

Military bounty land warrants.—There have been, approximately, 28,160 acres of public land located with military bounty land warrants during the year.

ORIGINAL AND FINAL ENTRIES RECEIVED AND PENDING.

On June 30, 1902, there were 248,576 original entries pending in the public lands division, and 93,280 entries were received during the year, making a total of 341,856 entries. Of this number, 31,533 entries have been canceled during the year, 45,548 passed to final entry, and 9,051 referred to other divisions of this office, leaving a balance pending on June 30, 1903, of 255,724, showing an increase of 7,148 more original entries pending than at the beginning of the fiscal year.

On June 30, 1902, there were 30,687 final entries pending in the public lands division, and 62,316 final entries were received during the year. Of this number 133 have been canceled, 13,875 referred to other divisions, and 39,775 approved for patenting, leaving a balance pending on June 30, 1903, of 39,310, an increase of 8,623 over the number of final entries pending at the beginning of the fiscal year.

CEDED CHIPPEWA LANDS IN MINNESOTA.

The examination of ceded Chippewa lands in Minnesota was resumed December 15, 1902, under the Act of January 14, 1889 (25 Stat., 642), as amended by the Act of June 27, 1902 (32 Stat., 400), with 16 examiners in the field under Mr. E. L. Warren, chief examiner, the number of examiners being increased to 26 in March last. The corps first completed the examination of lands in the former Chippewa of the Mississippi and Winnibigoshish Indian reservations, where they examined 159,313.18 acres, of which 96,196.44 acres were classified as "pine" lands, on which there were estimated to be 127,512,000 feet of pine timber, after which they moved to the Red Lake Reservation and have examined thereon to date 775,135.90 acres, of which amount 24,245.34 acres are reported as "pine" lands estimated to contain 26,878,000 feet of timber.

On March 2, 1903, the first sale of pine timber under the Acts cited was held at the district land office at Crookston, Minn., there being offered 20,678,000 feet of pine, described as being on 12,210.77 acres in sections 16 and 36 on the Red Lake and four ceded townships on the White Earth Indian reservations. Sealed bids were received for 14,771,000 feet of timber estimated to be on 7,737.18 acres, the bids ranging from $5 to $6.05 for white pine, and $4 to $4.75 for Norway, and aggregating $68,674.70. There were no bids received on 5,907,000 feet of timber, described as being on 4,474.59 acres, doubtless due to the fact that more than the amount of timber mentioned had been removed by authority of the State, for which settlement had been made.

On May 29, 1903, notice was given of the sale under the Acts cited at the district land office at Cass Lake, Minn., to be held on December 5, 1903, of 234,407,500 feet of pine timber on 109,757.34 acres of

land in the Leech Lake and parts of the Chippewa of the Mississippi and Winnibigoshish Indian reservations, and on June 20, 1903, notice was given of the sale to be held at the same place on December 28, 1903, of 95 per cent of the pine timber on 89,708.83 acres, estimated to contain 187,237,000 feet of timber, included in those parts of the Cass Lake and Chippewa of the Mississippi reservations selected for the Minnesota National Forest Reserve.

HOT SPRINGS, ARK., CLAIMS.

An Act of Congress approved March 3, 1901 (31 Stat., 1188), sections 4, 5, and 6, provided for the payment of certain claims known as the Hot Springs cases, filed under Act of March 3, 1877 (19 Stat., 377), which were disallowed by the Hot Springs Commission for the reason that the buildings for which compensation was sought were destroyed by fire before certificates for value thereof had been issued.

Twenty-two of such claims have been considered since date of the said remedial act and favorable reports made to the Secretary of the Interior with recommendation as to the value on twenty of the same. (Adverse reports were made in two cases.) Vouchers to the value of $50,027 have been issued by the Department to the interested parties in the settlement and payment of these claims.

PUBLIC SURVEYS. E.

The areas covered by the surveys accepted by this Office during the fiscal year ended June 30, 1903, are as follows:

State or Territory.	Acres.	State or Territory.	Acres.
Alaska	3,107	New Mexico	79,294
Arizona	221,125	North Dakota	1,150,486
California	165,497	Oregon	653,376
Colorado	249,954	South Dakota	888,301
Florida	2,533	Utah	821,804
Idaho	446,839	Washington	330,117
Louisiana	150	Wyoming	343,577
Minnesota	262,499		
Montana	1,504,963	Total	7,612,302
Nevada	479,054		

By the Act of Congress approved June 28, 1902 (32 Stats., 453), making appropriations for sundry civil expenses of the Government for the fiscal year ended June 30, 1903, and for other purposes, there was appropriated "For surveys and resurveys of public lands" the sum of $325,000, of which amount the Commissioner of the General Land Office was authorized to expend so much as he might deem necessary for examinations in the field, etc.

The sum of $75,000 was set aside to cover the cost of field examinations, the sum of $10,000 was reserved for emergencies, and the remainder was apportioned among the several surveying districts.

The apportionments made to the several districts were as follows:

Alaska	$5,000	North Dakota	$15,000
Arizona	12,000	Oregon	22,000
California	13,000	Utah	15,000
Colorado	6,000	Washington	32,000
Idaho	32,000	Wyoming	20,000
Minnesota	10,000	Examinations	75,000
Montana	40,000	Reserve fund	10,000
Nevada	10,000		
New Mexico	8,000	Total	325,000

Further apportionments were made from time to time to several surveying districts from the $10,000 held in reserve.

Approved surveying contracts, payable from appropriations for the survey of public lands and Indian reservations and from individual deposits, deposits by railroad companies, and repayments of cost of surveys by railroad companies, aggregated $333,254. Contracts were awarded for the survey of private land claims in Arizona and new Mexico aggregating $5,246.

The annual surveying instructions for the fiscal year will be found in the appropriate place in this report.

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SUSPENDED AND REJECTED SURVEYS.

During the last fiscal year there has been a considerable diminution of the number of surveys found defective in execution. It is believed that the promptness and thoroughness of the work of inspection by the examiners of surveys is affecting a wholesome reform in this important branch of the service. Surveys are refused acceptance because of—

1. Inherent defects discovered upon the face of the returns either by the Surveyors-General or this Office, such as faulty construction, failure to comply with special instructions, inadequate field notes of data obtained, etc.

2. Errors found by field examiners, such as incorrect alignment, insufficient memorials, imperfect monuments, excess of limits in measurement, neglect of proper marking, general slighting of work, etc.

3. Fraudulent surveys, lack of evidence of any attempt of deputy surveyors to carry out the plain requirements of the Manual.

Suspensions under the first and third classes are rare, the record showing no surveys rejected under the third class, and many surveys are held up by the Surveyors-General for imperfections before reaching this Office for action. The objections to surveys are mostly confined to the second class.

Of rejected surveys there were 1 in Colorado, 1 in Arizona, 1 in California, 1 in Idaho, and 4 in Minnesota.

Of suspended surveys there were 2 in Colorado, 1 in Idaho, 1 in Louisiana, 1 in Minnesota, 1 in Nevada, 1 in North Dakota, 4 in Oregon, 3 in Utah, and 3 in Washington.

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RAILROAD LAND GRANTS. F.

During the last fiscal year there were certified and patented, under the several land grants made by Congress to aid in the construction of

railroads and wagon roads, 5,816,957.04 acres, an increase over the preceding year of 808,825.38 acres. One hundred and ninety-five railroad and wagon-road patents were issued.

Of the area embraced in railroad and wagon-road listings and selections, 146,578.49 acres were canceled, an increase of 24,327.94 acres.

There were docketed and reinstated during the year 441 cases, and 315 cases closed. Of the 843 docket cases pending at the close of the year, 244 only were ready for action, the balance having already been decided or suspended. There were pending 766 entries, of which 366 are included in docket cases, and 255 suspended, leaving 145 ready for action.

There were 514 suspended applications for land in the State of Michigan pending July 1, 1902, of which 129 have been disposed of and 385 still remain suspended.

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RIGHTS OF WAY.

By the Act of March 3, 1875 (18 Stat., 482), Congress granted to railroads upon certain conditions right of way through the public lands.

Rights of way for railroads, wagon roads, and tramroads in Alaska were granted upon certain conditions by the Act of May 4, 1898 (30 Stat., 409).

Under the provisions of these Acts and special Acts, 31 companies have filed articles of incorporation during the year, which have been accepted.

Rights of way have been approved to 17 companies during the fiscal year. There were received during the year 463 maps of locations of railroads, which, with those already pending, made a total of 518. Of these, 120 have been approved, 12 filed not requiring approval, 2 pending before the Secretary of the Interior, and 265 have been otherwise disposed of by being rejected or returned for correction.

Under sections 18 to 21 of the Act of March 3, 1891, as amended by section 2, Act of May 11, 1898, rights of way have been approved to 82 companies, individuals, or associations of individuals. There have been received during the year 451 maps, and 96 have been approved, 19 filed not requiring approval, 11 pending before the Secretary, and 255 rejected or returned for correction.

Under the Act of February 15, 1901, authorizing the Secretary of the Interior to permit the use of rights of way through public lands, reservations, or national parks for telegraph and telephone lines, electrical and water plants, canals, reservoirs, etc., for the storage and conveyance of water, and all beneficial uses, applications have been approved for 26 companies, individuals, and associations of individuals. Under the provisions of this Act there were 3 maps pending July 1, 1902, requiring action; 98 received during the year, of which 11 were approved and 57 otherwise disposed of, most of them returned for correction.

By the Act of January 13, 1897, the construction of reservoirs for watering live stock upon unoccupied public lands, not mineral or otherwise reserved, is permitted upon certain conditions. There were pending, under this Act, at the beginning of the year, 7,728 declaratory statements; there were received 1,383, making a total of 9,111 on hand

for action during the year. Of this number, 8,132 were acted upon, and 979 were found in proper form and were filed away awaiting further action by the declarants under the law. There were 5,038 canceled or relinquished, leaving 4,073 pending on July 1, 1903.

By section 4, Act of August 18, 1894 (28 Stat., 372–422), provision is made for the donation to each of the States in which there may be situated desert lands of not more than 1,000,000 acres of such land as the State may cause to be irrigated, reclaimed, occupied, and cultivated by actual settlers. This Act has been amended by a provision of the Act of May 11, 1896, to the effect that a lien is authorized to be created by the State upon the lands segregated, and that when an ample supply of water is actually furnished to any tract or tracts thereof patent shall issue to the State for the same without regard to settlement or irrigation; and a further amendment by section 2, Act of March 3, 1901 (31 Stat., 1133–1188), by which it is provided that the time for the reclamation of the lands in each list shall be ten years from the date of its approval. If the land shall not be irrigated and reclaimed in that time, the Secretary of the Interior may continue the segregation of the land for a period not exceeding five years, or he may restore such lands to the public domain.

Lists have been filed by the States during the year, as follows:

	Acres.
State of Colorado, 1, aggregating	37,865.79
State of Nevada, 4, aggregating	2,082.39
State of Oregon, 3, aggregating	89,228.57
State of Washington, 2, aggregating	14,608.14
State of Wyoming, 3, aggregating	210,740.56

Lists have been approved during the year to the State of Idaho, 2, aggregating 11,892.46 acres; Oregon, 1, aggregating 84,707.74 acres; State of Wyoming, 1, aggregating 14,424.94 acres.

There have been relinquished, rejected, and otherwise disposed of lands in Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming aggregating 637,865.42 acres.

The records of this office show a large number of applications under the irrigation right-of-way Act, sections 18 to 21, Act of March 3, 1891 (26 Stat., 1095), the time for construction of which has long since expired without any attempt on the part of the applicants to even begin the necessary construction. Meanwhile the rights acquired under the approval of the maps remain in force, and the records of this office show that the land is subject thereto. There is no way in which those rights can be canceled under the present law except by judicial or legislative declaration of forfeiture. The former process is expensive and tedious, and it is not expedient to apply to Congress for relief in individual cases. Naturally these applications in many instances cover the most available sites for the storage of water, and stand as obstructions to the utilization of such sites by parties acting in good faith or by the Government in its several projects for the reclamation of arid lands under the Act of June 17, 1902 (32 Stat., 388). There is much the same condition of affairs as to the railroad rights-of-way Act of March 3, 1875 (18 Stat., 482). There are several thousand miles of railroad right of way which have been approved, and which will doubtless never be built upon, which remain of record as burdens upon the land held now by settlers.

Under the Acts of January 21, 1895 (28 Stat., 635); section 1, Act of

May 11, 1898 (30 Stat., 404), and Act of February 15, 1901 (31 Stat., 790), permission has been given for construction of ditches and reservoirs for electrical and other purposes, except irrigation, and the construction of power plants and other necessary buildings in connection therewith. In a number of cases the applicants have expended large sums of money for the construction of these works. The permission given by the Secretary is merely temporary, however, and if the land should be taken up by settlement, or otherwise, the applicant must make arrangements for the occupation of the right of way with the settler. This leads to considerable dissatisfaction on both sides. I am of opinion that where parties have expended large sums of money for such plants they should be protected against subsequent settlers.

Having these considerations in mind, and also a number of other matters which have been found by experience to require amendment or regulation, a draft of a bill relating to these matters was, on March 19, 1902, submitted to the Department and by the Department to Congress, which failed to become a law.

The experience of the past year has but emphasized the great necessity for the amendment of the existing Acts upon the lines specified, and legislation to that end can not be too strongly urged.

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ALLEGED FRAUDULENT ENTRIES.

The increase in the total number of alleged fraudulent entries pending from that reported during the previous year is due largely to departmental instructions of November 18, 1902, directing the investigation of all entries made under the timber and stone Act in the States of Oregon, California, and Washington with a view of determining their bona fides. Under this order alone nearly 10,000 of such entries have been suspended, and fifteen special agents are now engaged in this investigation, to the exclusion of other work.

COMPULSORY ATTENDANCE OF WITNESSES.

The Act of January 31, 1903 (32 Stat., 790), which provides a means by which the attendance of witnesses may be compelled in matters requiring a hearing before Registers and Receivers, will, it is believed, assist this office materially in establishing the fraudulent character of entries made in violation of law. Appropriate instructions under this law were issued in circular approved by the Department March 20, 1903.

INDIAN ALLOTMENTS.

In your letter of February 21, 1903 (32 L. D., 17), you approved, with certain modifications, the recommendation made by this Office for the examination, by the Office of Indian Affairs and this Office jointly, of all allotments remaining intact which had been made to Indians under the fourth section of the general allotment law of February 8, 1887 (24 Stat., 388), and its amendatory Act of February 28, 1891 (26 Stat., 794). The purpose of this examination is to ascertain whether the lands included in such allotments are suitable for homes for the Indians, whether the requirements of the law as to settlement have been complied with, and generally so to adjust the allotments as

to accomplish the purpose for which the law was enacted. This was, as stated by Attorney-General Garland in his opinion of January 26, 1889 (19 Op., 232), "To change the wandering, improvident, and semi-civilized hunter to the domestic, industrious, and enlightened citizen." It is intended to induce the Indians, as far as possible, to make their homes upon the allotments where the lands allotted to them are suitable for that purpose, and where they are not suitable to exchange their allotments for lands that are suitable.

The investigation is now in progress and the allotments in the State of Nevada are being examined by agents of this Office and the Office of Indian Affairs. Other districts will be taken up as fast as practicable. It is believed that the work will result in giving to the Indians a clearer understanding of the provisions of the allotment law and the benefits they will secure by a strict compliance with its requirements. Those tracts which are not of a character subject to allotment will be restored to the public domain, and an earnest effort will be made to adjust the allotments in a way that will be of the greatest benefit to the Indians and to the public generally.

SOLDIERS' ADDITIONAL HOMESTEAD ENTRIES.

During the fiscal year 14 convictions have been secured for frauds committed in connection with soldiers' additional homestead assign ments, the maximum penalties inflicted being imprisonment for seven years and the imposition of a fine of $1,400.

While a great many frauds are still being discovered in connection with soldiers' additional homestead locations made heretofore, a much less percentage of fraud is found in those now being received. This fact, I think, is due to the vigorous measures which have been taken by this Office to punish those guilty of frauds of this character.

NEEDED APPROPRIATIONS.

The need for a large force of special agents to protect the public domain from unlawful entry and appropriation and the public forests from depredation has never been greater than at the present time. Complaints come to this Office from every section of the country of flagrant violations of the various laws relating to the public lands. Thousands of entries are being made for speculative purposes with scarcely any attempt at compliance with the legal requirements, vast areas are unlawfully inclosed to the exclusion of actual settlers, and hundreds of thousands of dollars' worth of public timber is being taken unlawfully. To put a stop to these practices and so to preserve the remaining public lands for the home builder, a large field force is absolutely necessary. It will be remembered that the public domain covers about one-half of the entire country. The appropriation for the past year allowed the employment of only about 58 agents, and their duties consisted not only in investigating and reporting on thousands of alleged fraudulent entries, timber depredations, and unlawful inclosures, but in doing a large part of the supplementary work necessary to establish violations of law discovered by them. They are expected to take entire charge of proceedings against entries in the local land offices and to assist United States attorneys in prosecuting

cases of trespass, etc., in the courts. I have, therefore, included in the annual estimates for appropriations for this Office an additional amount for this work.

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AMENDMENT OF FOREST LIEU SELECTION ACT.

In the exchange of land within a forest reserve for other public land it frequently occurs that land from which the timber has been cut is exchanged for land heavily timbered. This is manifestly unfair to the Government, but can not be prevented under the law. While it is considered to be impracticable to require that only land of like value shall be taken in exchange for land in a reserve, it might be provided that timber land should not be selected in lieu of such land, just as mineral land is now excepted from such selection.

There would be no hardship in this restriction, as the timber can be taken off the land in the reserve before the exchange is made, and in fact this is generally done. In addition to this is the fact that these exchanges are optional as to the owners of land in a reserve. He is not obliged to make the exchange.

I recommend that the Act of June 4, 1897 (30 Stat., 36), as amended by the Act of June 6, 1900 (30 Stat., 614), be further amended so that only nontimbered land may be taken in lieu of land within a forest reserve.

FOREST RESERVE FORCE.

As stated in the last annual report, the forestry field force was rearranged in accordance with instructions dated November 8, 1901. The new arrangement placed each forest reserve in district charge of a forest supervisor, and divided the ranger force into three classes. The positions of the higher-grade rangers were generally filled by promotion from the lower grades. Such promotions have had a good effect upon the service. The field force is now completely organized and is in better condition than at any time heretofore.

On account of the limited appropriations, it has been necessary each year to dispense with the services of supervisors and many of the rangers during the winter months on nearly all of the reserves except those of southern California, Arizona, and New Mexico.

During the past year the salaries of forest supervisors have been readjusted, and in some cases reduced to correspond with the duties and responsibilities devolving upon such officers. This action made it possible to retain the supervisors during the entire year; also a number of rangers of the first and second class. This permitted the assignment of newly appointed rangers under the immediate control of a ranger who was well qualified to instruct and direct them.

During the year several of the small reserves recently created were placed in charge of an efficient forest ranger. Their duties as supervising officers were performed so well that this Office has recommended their appointment as forest supervisors at a moderate salary. Their services continue to meet the expectations of this office.

During the season when the reserves were most threatened by fire there were about 400 rangers on duty. This number was retained in the service until October 15, when the force was considerably reduced. During the winter months there were employed about 175 rangers on

all the reserves. Beginning with the 1st of April this number was gradually increased, as occasion required, until at the present time there are employed 441 rangers.

GRAZING IN FOREST RESERVES.

Practically no changes have been made in the rules and regulations governing grazing in forest reserves during the past year, except the elimination of the supervision and allotment of range and sheep by wool-growers' associations, which associations, by Departmental decision of February 8, 1902, were allowed to allot the sheep permitted to graze in the reserves by the Department. On October 24, 1902, the Department decided that said associations should have no jurisdiction in this respect. A new Departmental grazing circular, covering all existing orders, was issued on May 22, 1903, the prominent feature of which, as distinguished from former general orders, is paragraph 2 thereof, which reads:

2. Stock from one State or Territory is not allowed to graze in a forest reserve in another State or Territory: *Provided, however,* That where satisfactory evidence is submitted showing that taxes are paid on any given stock in more than one State or Territory the habitat of such stock shall be held to be in either State or Territory in which such taxes are paid and such stock shall be eligible to graze in a forest reserve in either State or Territory in which such taxes are paid, but when a permit is issued for the grazing of such stock in one of the States or Territories in which such taxes are paid it shall not be eligible during the lifetime of such permit to graze in a reserve in any other State or Territory in which such taxes are paid.

The grazing question is the most perplexing one with which this office has to deal in connection with forest-reserve administration. Those persons who have been in the habit of ranging their stock upon lands included within a forest reservation are insistent upon continuing the practice after the reserve is established, some of them going to the extent of openly defying all rules and orders from the Department prohibiting grazing therein.

The policy of this Office is to minimize the injury to the grazing industry to the extent consistent with its duty in carrying out the rules and regulations formulated by the Department to regulate the use and occupancy of the reserves and to preserve the forests and water supply. It usually occurs that the grazing areas were occupied by excessive numbers of stock, especially of sheep, before they were included within the reserves, making it necessary, if the objects for which the reserves were created are to be attained, to allow a less number in the reserve than had theretofore grazed on these areas. As soon as the departmental order fixing the number to be allowed in the reserve is issued, the struggle between owners of sheep and between the cattlemen and the sheepmen begins, this Office being flooded with petitions and letters urging the rights and equities of either the one or the other, making necessary the adoption of some general rule to govern the allotments, which rule is stated in paragraphs 2 and 17 of said circular of May 22, 1903.

CATTLE AND HORSE GRAZING IN FOREST RESERVES.

As a rule, the number of cattle and horses authorized to enter a forest reserve is sufficiently liberal to make sure of accommodating all the stock of this kind which has usually grazed on the lands included in

the reserve when the number so accustomed to graze is not excessive. It therefore happens in many instances that the number authorized is considerably in excess of the number for which permits are sought, which is accounted for by the fact that the forest officers have been instructed that the enlargement of herds and the shipping in of cattle for the purpose of filling the quota allowed any reserve will not be permitted; that the liberal allowance is for the purpose of accommodating the stock that has naturally grazed on the reserve lands in the past, and if this stock does not fill the quota, then it is to remain unfilled. The number of permits issued and the number of stock covered thereby, therefore, afford the best showing of the cattle and horse grazing status. For the grazing season of 1901 there were 1,926 permits issued to graze 277,621 head in 32 reserves; for 1902 there were 2,642 permits issued to graze 357,552 head in 37 reserves, and for 1903 there were 4,121 permits to graze 529,973 head in 44 reserves.

SHEEP GRAZING IN FOREST RESERVES.

The number of sheep allowed to graze in a forest reservation the first season after it is established is usually excessive, although in some instances it may be a material reduction of the number that had theretofore grazed on the lands. In several cases the sheep were not disturbed the first season because there had not been a sufficient investigation on which to base intelligent action. In making its recommendations, the object of this Office is to create the least possible disturbance of existing grazing conditions until a fair opportunity is given for a readjustment thereof, and to gradually reduce the number of sheep to be allowed in any reserve where sheep grazing may be permitted to the number that the reserve will carry without being injured by the grazing.

For the grazing season of 1901 the Department authorized the grazing of 1,400,000 head of sheep in all or parts of 8 reserves; 391 permits were issued, covering 1,214,418 head. For the season of 1902 these same reserves were opened to 1,197,000 head, and 484 permits were issued, covering 1,151,513 head; and in 1903 they were opened to 877,000 head, when 320 permits, covering 812,328 head, were issued.

In some cases the applications made covered much more stock than was permitted to enter under the Department's authorization, and had to be reduced so as to fall within the total number allowed in the reserve; in other cases applications were not made for the full number authorized, so that the permits issued do not cover, in the total, the quantity of stock authorized. In addition to said 8 reserves, portions of the newly constituted Yellowstone Reserve in Wyoming, the Santa Rita in Arizona, Lincoln in New Mexico, Madison and Little Belt Mountains in Montana, and the Medicine Bow in Wyoming were opened to the grazing of 601,400 head of sheep in 1903, and 113 permits were issued, covering 600,239 head.

On November 17, 1898, the Department of Justice advised this Department that a criminal prosecution to punish a person who grazed sheep in a forest reservation in violation of the rules and regulations prohibiting sheep therein could be maintained. A case of this kind came before the United States district court in the southern district of California, and on November 14, 1900, the court held that the Act of June 4, 1897 (30 Stat., 34–36), in so far as it declares to be a crime

any violation of the rules and regulations thereafter to be made by the Secretary of the Interior for the protection of the forest reservations is, in substance and effect, a delegation of legislative power to an administrative office, and sustained the demurrer to the information. On February 6, 1901, the Honorable Attorney-General said that, after careful examination on the subject, he saw no reason to depart from the views expressed in the said letter of November 17, 1898, and suggested that other prosecutions under said Act be proceeded with in other districts, with the view of getting a case, if possible, before an appellate court. Similar suits were, therefore, brought in northern California, Arizona, Utah, and Washington, and in each case the said decision of the district court of southern California was sustained. There being no right of appeal on the part of the Government from these decisions, it has been impossible to get a case before an appellate court.

On February 10, 1903, this Office advised the forest officers as follows:

> By direction of the Secretary of the Interior you are hereby instructed that hereafter you are not to institute criminal proceedings in cases of sheep and other similar trespasses on forest reserves until you have first reported the trespass and all the facts in relation to the same and have thereafter received instructions authorizing such proceedings.
>
> In cases where you learn of a contemplated invasion of a forest reserve by the owner of sheep without a permit you will at once consult with the United States attorney and obtain a restraining order or an injunction against the party from entering the reserve without a permit, or, if such owner has already entered the reserve without authority, to restrain him from further continuance of such unauthorized action.
>
> You are also instructed to keep this office advised of all proceedings, civil or criminal, not only of the character above indicated, but of any character whatever relating to or affecting the forest reserves.

Injunction proceedings were had for sheep trespasses in several jurisdictions, and in every case the court granted the injunction. In the case of the United States *v.* Dastervignes et al. (118 Fed. Rep., 199) the defendants appealed. In an elaborate decision, going thoroughly into the subject, the United States circuit court of appeals for the ninth circuit, California, sustained the lower court (122 Fed. Rep., 30).

In many cases the prevention of stock trespass by injunction is a slow process, and some owners persist in taking their sheep into a forest reserve in large numbers to obtain the pasturage until they are ordered out by the court. To illustrate this I need but call your attention to my letter of June 9, 1903, relative to the letter from the Acting Attorney-General of June 3, 1903, inclosing a letter from the United States attorney for the southern district of California relative to injunction proceedings asked by the forest superintendent against the owners of seventeen bands of sheep (about 34,000 head) then trespassing in the Sierra Forest Reserve. The attorney said that—

> In order to reach the defendants to serve papers on them the marshal would be obliged to travel a very great distance * * * either going by way of Sacramento, Cal., and Reno, Nev., thence to Independence, a distance of 619 miles, or by way of Mohave and to Independence by stage, a distance of about 400 miles from Fresno * * * .

The Congress no doubt intended to fix a criminal penalty for violation of the rules and regulations prescribed by the Secretary of the Interior. In view of the said decisions, holding that a criminal prosecution can not be maintained, I think the matter should be laid

before Congress with the recommendation that an Act be passed making it a criminal offense to pasture stock in a forest reserve without a permit therefor.

SHEEP GRAZING ON PRIVATE LANDS IN FOREST RESERVES.

Paragraph 22 of said circular of May 22, 1903, provides the method of obtaining a permit to cross the reserve lands to reach private holdings within the reserve with sheep. All applications for such permits, showing good faith and made in accordance with the rule, receive special attention, that there may be the least possible delay in according to every owner of private lands within a reserve, or lessee thereof, his legal right of ingress thereto and egress therefrom. That there is some abuse of the privileges accorded by this class of permits there is no doubt, because the private lands are not under fence, frequently are not well defined, and are in scattered tracts. A great majority of the permits of this class are issued to reach private lands in the Sierra Forest Reserve in northern California, where thousands of acres are owned by individuals or estates, who use them for sheep grazing or lease them to others for that purpose. For the grazing season of 1903 the Department issued permits to eight persons to cross Sierra Reserve lands with 25,000 head of sheep to reach 55,980 acres of private lands.

That the rules of the Department as to grazing are reasonable and should be complied with is shown in the cases of the United States *v.* Marvin Simpson, George Shipp, Frank Estelle, Anderson Blasingame, and John Shipp, in the southern district of California. The history of these cases is about as follows: In May, 1901, these defendants took sheep into the Sierra Forest Reserve in violation of the rules. An injunction was applied for, and on July 30, 1901, a hearing was had, at which the defendants claimed they were going to private lands within the reserve. The court permitted them to cross the reserve lands with their sheep to reach such alleged private holdings, thereby defeating the rules prescribed by the Secretary in such cases, but enjoined them from unnecessarily intruding upon the reserve lands. The next season, or on May 2, 1902, the court so modified the injunction as to again allow the defendants to take into the private lands four sheep for each acre owned or leased by them, but requiring due notice to the forest superintendent and a description of the lands claimed.

Anticipating a similar motion for the season of 1903, this Office called upon the forest superintendent for a description of the lands claimed by the defendants, as furnished him under the court's last order. Upon receipt thereof it was discovered that the defendants claimed the right to use 7,076 acres of private lands within the reserve. An examination of the office records as to these lands showed that 3,840 acres thereof were covered by the fraudulent Benson surveys, and that of these 3,840 acres, 2,520 were returned as swamp and overflowed and that 1,320 were not so returned. Of the lands returned as swamp and overflowed, 1,480 acres had been deeded to the United States as bases for lieu selections by parties other than the defendants, under the Act of June 4, 1897. There were 3,036 acres covered by accepted surveys (the Benson surveys were rejected) and 200 acres had never been surveyed. Of these 3,036 acres, 2,036 were never returned as swamp and overflowed and were not covered by any entry or location; 320 acres thereof

were returned as swamp and overflowed, but had been relinquished to the United States.

Inasmuch as most of the alleged claims of these defendants were set up under the swamp grant to the State of California, the grant requiring a segregation by survey of the swamp lands, and there having been no legal survey of a majority of the lands and it being shown that much of the land claimed by them had in fact been patented by the State to others who had redeeded much of it to the United States, it was evident that the claims of the defendants were fictitious. As a matter of fact, by no possible construction of the law and of the Departmental decisions could these parties be entitled to the use of more than 200 acres out of the 7,076 acres claimed. These facts were shown in detail as to every tract in question by an affidavit of a principal examiner in this office made on April 21, 1903, which was forwarded to the United States attorney in California. As anticipated, the defendants made the motion, on which a hearing was had on May 4, 1903, to again be allowed to enter the reserve. The result is shown in an extract copy of a letter from United States Attorney Valentine, dated May 6, 1903, as follows:

> I have the honor to report that I received direct from the Hon. J. H. Fimple, Acting Commissioner for the General Land Office, about April 27 last, original and copies of affidavits as requested in my letter to you of April 3. These affidavits were full and completely covered the points relied upon by the Government in opposition to the defendants' motions in the above-mentioned cases for extending the order made therein on May 5, 1902, permitting them to drive their sheep to lands claimed by them within the reserve. These affidavits furnished data which we had not been able before to obtain and enabled us to successfully resist the motions of the defendants, and also furnished basis for the Government's motion for an injunction restraining the defendants from driving their sheep into the reserve at all. The matter came up for hearing in this northern division at Fresno, the 4th instant, and was fully presented. The defendants' motions were denied and the Government's motion for injunction restraining defendants from driving their sheep into the reserve without first obtaining permission therefor from the Department of the Interior was granted, so that now the defendants are entirely barred from entering the reserve with their sheep, even though they should succeed in establishing title to lands herein, without complying with the rules and regulations of the Interior Department in accordance therewith and obtaining the necessary permits.
>
> * * * * * * *
>
> I think now the battle is won in respect to these sheep cases, and that the restraining orders will prevent the sheep men from trespassing with their sheep upon the reserves, and if they do attempt to violate the orders we shall proceed against them for contempt.

FOREST-RESERVE FIRES.

During the fiscal year ended June 30, 1903, there were 597 camp and other small fires discovered in the forest reservations by the forest force which were extinguished while in the incipient state and 279 fires which had passed the incipient stage. Some few of these larger fires got beyond control and burned over a considerable area before being put out. August and September of 1902 were prolific of numerous devastating forest fires throughout the Western country, and the forest reservations were, of course, subject to the same conditions that made these vast fires possible.

While reports of large fires were coming from sections of the country in which the forest reservations are located, the lands in reservation and protected by a watchful forest force, extinguishing incipient fires

discovered and systematized for promptly attacking fires which have passed beyond the incipient stage, were remarkably free from the prevailing large fires, although the area burned over was larger in the total for the year than during the preceding year. The excessive fires and areas burned over during the year just ended occurred in August and September, 1902, in the Cascade Range in Oregon, Mount Rainier in Washington, and Teton in Wyoming, and in the Medicine Bow in Wyoming before the forest force was appointed, where a total area of 240,497 acres was burned over during that period.

The areas reported burned over in the forest reserves simply indicate the surface area of the fires, whether in timber, brush, or dead and down timber, and do not, therefore, imply the damage which would seem to be indicated by the area so reported burned over. Generally speaking, the fires which get away from the forest force, burning over a large area, occur in the dead and down timber, of but little value, and destroy but little merchantable timber, although the said fires in the Cascade Range, Mount Rainier and Teton reserves injured or destroyed timber on about 152,000 acres.

The good effect of the forest-fire law, and the education of the people by the forest force, is shown in the decreasing number of camp and other small fires discovered by the forest rangers. In 1901 there were 1,335 such fires discovered; in 1902 there were 1,083, and in 1903 there were 597, while the area in reserves, and for which fire reports were made, was materially increased each year.

The fires which had passed beyond the incipient stage when discovered were those fires which had gained sufficient headway to make almost certain the beginning of large and destructive fires had they not been promptly discovered and put out. In 1901 there were 338 fires of this class, which burned over an area of 126,223 acres; in 1902 there were 275, burning over 87,799 acres, and in 1903 there were 279, which burned over 279,732 acres.

A great majority of these fires were extinguished before they assumed any great magnitude; again showing the utility in this respect of a forest force in fire protection. By far the greater part of the area burned over was confined to a very few large fires, which location, weather and wind conditions made it practically impossible to control.

Aside from the said several large fires in the Cascade Range, Teton, Mount Rainier, and Medicine Bow reserves, which occurred in August and September, 1902, there were but 39,245 acres burned over by all other fires in all the reserves during the fiscal year 1903.

SALE OF TIMBER WITHIN FOREST RESERVES.

Two hundred and forty-eight petitions for sale of timber from lands in the forest reserves have been presented, involving 44,120,982 feet of timber, board measure, and 33,725 cords of wood.

Eighty-five petitions were pending before the Office at the date of last report.

One hundred and fifty-six sales have been effected, and of the proceeds of such sales and amounts received on previous sales in which there were deferred payments, there has been realized and paid into the Treasury $45,838.08, and a considerable amount arising from such

sales is held in the hands of receivers of public moneys at the several United States land offices as unofficial moneys pending approval of contracts and other necessary proceedings in several cases.

Fifty-nine cases have been refused or abandoned by petitioners for various reasons, and 118 petitions are pending necessary official action or the compliance of petitioners with Department orders relative thereto.

The timber sought and sold has been largely dead, or, as that in the Black Hills Forest Reserve, so seriously affected by the action of insects as to make its early destruction certain, as well as to seriously imperil the surrounding timber not so affected, and every effort has been made to clear the reserves of dead and insect-affected timber wherever located. Very general success has attended such efforts, and the use of such timber has been accepted by consumers in all cases where it could be made available.

The difficulties heretofore experienced in inducing economical use of timber and the clearing up of the débris left from the cuttings have very perceptibly diminished, and the policy of the Office in this particular is being acquiesced in very generally.

SAWMILLS IN FOREST RESERVES.

The presence and operation of sawmills in the forest reserves has been and is regarded as a source of peril to the interests involved in the absence of wholesome restrictions; but the fact that a sawmill located within a reserve under a permit based upon a proper contract and a good and sufficient bond is much less likely to be a dangerous or disturbing element than one outside the line operating unrestricted has been recognized, and permits have been granted in cases where it appeared that the needs of the people demanded such action and where the applicants were reliable and respectable, and there is every reason to believe that such action has been for the best interests of the reserves and has promoted the interests of the people.

The number of such permits issued has not been large and the operations of the mills have been carefully supervised, and it is believed that the policy of the office has been fully justified by the results.

FREE USE OF TIMBER.

There still continues a growing demand for the free use of forest-reserve timber. The quarterly reports of the forest officers show 2,166 applications received, while but 1,322 such applications were reported for the fiscal year of 1902.

There have been allowed during the past fiscal year 2,135 applications for the removal of both living and dead timber to the amount of 2,738,567 feet B. M., and 35,838 cords.

The amount of dead timber allowed during the year is slightly in excess of the amount of living timber allowed. To that extent the forest reserves have been cleared out and rid of an element of fire danger, and the conditions of the reserves thereby improved.

To correct the impression that has obtained to some considerable extent among the residents in and near forest reserves, that they could have the free use of timber to supply fuel or other needs incidental to conducting business or commercial enterprises, circular instructions

have been given to forest officers not to allow forest-reserve timber to be taken free of charge by persons conducting hotels, road ranches, way stations, and other similar places where charge is made for accommodations provided; or by settlers, ranchers, and others for use in the manufacture of crates, boxes, or other device for the shipment of the product of their land; or for fencing, corrals, or other use in furtherance of grazing or other industry conducted as a matter of speculation upon other lands than those owned or claimed under the public land laws by the stock grower, rancher, or settler.

EXPORT OF FOREST-RESERVE TIMBER ACROSS THE STATE LINE.

In administering the Act of June 4, 1897 (30 Stat., 34–36), it is found to be defective in requiring that all timber procured from forest reserves shall, without exception, be used in the State or Territory in which the reserve lies.

While such limitation is undoubtedly well in some instances, yet cases arise in which it results in working a serious hardship. For instance, persons living in the State of Wyoming, near the Black Hills Forest Reserve, and others in Montana, near the Big Horn Forest Reserve, and others in southern Wyoming, near the Uintah Forest Reserve, are compelled by their necessities to violate the law, since they live on prairie land and can only secure timber from the said reserves lying across the State line. These reserves contain their natural sources of timber supply, and yet they are deprived of it.

As another instance of the defective working of such restriction may be mentioned the fact that in the timbered districts of Washington, Oregon, California, and Idaho the practical working of the Act is to cause much of the timber in these States to be left to waste and decay, since there is not a sufficient demand in the local market in each State to utilize all of it, and at this very time we have a serious beetle calamity in the Black Hills, with several hundred millions of feet of dead timber, which it is impossible to correct or remedy without a law enabling the export of timber into Wyoming and Nebraska.

While leaving this restriction operative in general, the Secretary of the Interior should be given discretionary powers in exceptional cases.

Report to this effect was made to the Department on December 28, 1901, submitting the draft of a Bill which, upon your recommendation, was subsequently introduced as H. R. 9202 (57th Cong., 1st sess.), and was favorably reported upon, with a slight amendment, by the Public Lands Committee of the House. As so amended it was subsequently introduced in the Senate at the last session of Congress, but failed of passage.

The reasons above presented make it urgent that this Bill should be reintroduced at the next session of Congress, and I accordingly recommend action to that end.

PROPOSED PETRIFIED FOREST NATIONAL PARK, ARIZONA.

In view of the importance of protecting the region in the Territory of Arizona containing what is known as the Petrified Forest, I recommend that the Bill for that purpose, which has been heretofore under consideration by Congress, be reintroduced at the next session, with a view to securing its early passage.

PROPOSED PAJARITO NATIONAL PARK, NEW MEXICO.

I desire to renew the recommendation heretofore made by this Office for the establishment of the Pajarito National Park in the Territory of New Mexico, containing extensive cliff dwellers' ruins. A Bill for this purpose was introduced in each of the last two Congresses but failed of passage. I respectfully urge that it be again introduced at the next session.

CREATION OF NATIONAL PARKS.

I also wish to renew the recommendations made in previous reports from this Office for legislation which shall empower the President to set apart, as national parks, tracts of public land which, for their scenic beauty, natural wonders or curiosities, ancient ruins or relics, or other objects of scientific or historic interest, or springs of medicinal or other properties, which it is desirable to protect and utilize in the interest of the public.

The draft of a Bill for this purpose was laid before the Department by this Office on March 29, 1900; which was introduced as House Bill 11021 Fifty-sixth Congress, first session, but failed of passage.

I respectfully recommend that this Bill be reintroduced at the next session of Congress.

PRESERVATION OF GAME AND FISH.

The provision in the Act of March 3, 1899, which has been reenacted annually, by which all forest officers and employees are required to aid in the enforcement of the local laws for the protection of game and fish in their respective reserves, has been of great service in those States or Territories where such assistance was desired.

If there could be a unity of action between the Federal and State authorities great good could be accomplished in game protection.

It is generally conceded that the larger game animals, now chiefly to be found in the mountains of the West, should be protected from ruthless and wanton destruction. A Federal statute which would tend to harmonize State legislation upon this subject without creating a divided jurisdiction over forest reserves and which would not encroach upon the proprietary rights of the States to control the game and fish within their respective boundaries would do much toward accomplishing that purpose.

I recommend that the attention of Congress be called to this subject.

AUTHORITY TO MAKE ARRESTS.

In connection with securing adequate legislation on the subject of forest fires, the attention of the Department has heretofore been called to the urgent need of a law which will authorize forest officials to make arrests for the violation of the laws and regulations relating to forest reserves. At the last session of Congress a Bill for that purpose (S. 7123), passed the Senate and was favorably reported upon by the House. It, however, failed of final action in the House.

I recommend that this matter be again referred to Congress.

MISCELLANEOUS PRIVILEGES.

The number of applications for permits to occupy and use forest reserve lands for privileges of a miscellaneous and special character has again been double that of the previous year. As against the 82 applications received last year, which was about twice the number of the preceding fiscal year, 166 have been received. They pertain to the forest reserves which had been created prior to June 30, 1902. Nearly all these applications have been considered. About one-half have been allowed, one-fourth rejected, and the remaining number have been returned for amendment or supplemental report or are yet awaiting action.

In submitting to the Department petitions for special privileges within the limits of forest reserves, the recommendation, in all cases, has been governed by the question as to whether, and to what extent, the proposed enterprise would affect the welfare of the settler and the home maker; the mining prospector and the development of valuable mining property; the benefit of the project to the public interests involved; the furtherance and maintenance of law and good order within the reserves, and the proper protection of all forest-reserve interests. Applications for necessary road building and road repairs, the establishment of an occasional accommodation house, way station, or store, and other similar privileges, have been favorably recommended, when shown to be required for the convenience of the settlers and miners and the traveling public. Applications for permits to conduct liquor saloons have been adversely considered, in the belief that they are inimical to the peace, good order, and proper protection and control of forest reserves.

The privilege of cutting grass on the forest-reserve meadow lands has been authorized to be granted upon simple application to the forest officer, as in the free use of timber, when the grass is desired for the exclusive use of the applicant in feeding his own stock, but not for sale.

INTRUDERS.

There have been reported 63 cases of unauthorized occupancy of forest-reserve lands by unlawful inclosure for various purposes, by claiming land under the mining laws and using it for agricultural purposes, hotels, saloons, and various other business enterprises, and by constructing reservoirs, irrigating and mining ditches, pipe lines, telephone lines, etc., without making proper application therefor under the law.

The intruders have been advised of the statutory requirements or prohibition, as the case might be, and have been required to comply with the requirements under which occupancy might be authorized. Upon such compliance, permit to remain has been granted, otherwise the parties have been notified either to vacate or to cease further operations.

TRANSFER OF THE ADMINISTRATION OF THE FOREST RESERVES TO THE DEPARTMENT OF AGRICULTURE.

The work of establishing a forest service for the care and administration of the reserves, which was begun in the summer of 1898, has

been developed along such practical lines as fall within the province of the Interior Department. The experience of these five years abundantly testifies to the need for efficient work of a scientific character.

The dangers to which the reserves are exposed from fires, timber depredations, and other sources make the establishment of an efficient protective force a matter of great importance. Following closely upon that, however, must come the application of scientific methods in dealing with the many and varied forest problems in connection with the various industries affected thereby.

The magnitude of the interests affected and the intricacies of the problems involved make it evident that the development of forestry in the United States, in connection with our Federal forest reserves, calls for the application of a system of scientific forestry upon a scale in proportion to the work to be performed. Elementary efforts need to give way in the course of development of such a system. It would seem, therefore, that the stage had been reached when the work should be committed to the care of men who have had the scientific and practical training needed to fit them to cope with work involving such far-reaching issues. The Bureau of Forestry of the Department of Agriculture is properly organized and equipped to carry on this branch of the work.

The administrative features of forest reserves also are at present in a very unsatisfactory condition. In the creation of a new reserve three separate Bureaus must act before a definite recommendation is made—the Bureau of Forestry, of the Department of Agriculture, the Geological Survey of the Interior Department, and this office. Such a division of jurisdiction and responsibility is not conducive to the best results. I think it would be very much better to have the matter of the location and control of forest reserves all in one bureau. I therefore recommend that all business in the General Land Office pertaining to forest reserves, except lieu-land selections and other matters pertaining to or affecting titles, be transferred to the Bureau of Forestry of the Department of Agriculture.

SUMMARY OF LEGISLATION RECOMMENDED.

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Respectfully submitted.

W. A. RICHARDS, *Commissioner.*

The SECRTARY OF THE INTERIOR.

* * * * * * *

REPORT OF THE COMMISSIONER OF INDIAN AFFAIRS.

OFFICE OF INDIAN AFFAIRS,
Washington, D. C., October 15, 1903.

SIR: The Seventy-second Annual Report of the Office of Indian Affairs is respectfully submitted.

FINANCE.

Appropriations.—The Indian appropriation act for the fiscal year ending June 30, 1904, contained appropriations aggregating $8,521,306.77.

The aggregate of the appropriations for the fiscal year 1903, given in the last annual report, was $9,132,028.10. Since then appropriations for the Indian service were made by the general deficiency act of March 3, 1903, as follows:

Current and contingent expenses	$20,000
Miscellaneous	12,000
Support of schools	8,245
Total	40,245

This, added to the aggregate appropriated by the regular Indian appropriation act, makes a total of $9,172,273.10 for 1903.

The different objects of appropriations for the two years are shown by the following table:

TABLE NO. 1.—*Appropriations for the Indian service for the fiscal years 1903 and 1904.*

	1903.	1904.
Current and contingent expenses	$727,640.00	$727,940.00
Fulfilling treaty stipulations	2,249,377.69	2,181,633.35
Miscellaneous supports, gratuities	745,000.00	649,000.00
Incidental expenses	93,400.00	93,400.00
Support of schools	3,539,465.00	3,522,950.00
Miscellaneous	818,022.41	1,346,383.42
Capitalization of annuities	999,368.00	.....
Total	9,172,273.10	8,521,306.77

The excess of 1903 over 1904 is $650,966.33, accounted for as follows:

1903 over 1904:		
Fulfilling treaty stipulations	$67,744.34	
Miscellaneous supports, gratuities	96,000.00	
Support of schools	16,515.00	
Capitalization of annuities	999,368.00	
		$1,179,627.34
1904 over 1903:		
Current and contingent expenses	300.00	
Miscellaneous	528,361.01	
		528,661.01
		650,966.33

Expenditures.—The expenditures on account of the Indian service for the fiscal year ended June 30, 1903, were as follows:

Current and contingent expenses	$719,242.59
Fulfilling treaty stipulations	1,560,085.90
Miscellaneous supports, gratuities	489,418.74
Trust funds	3,578,784.65
Incidental expenses	69,836.81
Support of schools	3,161,438.61
Miscellaneous	3,356,360.78
Total	12,935,168.08

The excess of this total over that of the appropriations for 1903 is accounted for by the item of "Trust funds," which are not appropriated annually, and by the item "Miscellaneous," which includes a number of permanent appropriations which are carried over from year to year.

EDUCATION.

There are only two phases of the Indian question: One, that the American Indian shall remain in the country as a survival of the aboriginal inhabitants, a study for the ethnologist, a toy for the tourist, a vagrant at the mercy of the State, and a continual pensioner upon the bounty of the people; the other, that he shall be educated to work, live, and act as a reputable, moral citizen, and thus become a self-supporting, useful member of society.

The latter is the policy of the present administration of Indian affairs, and if carried to its legitimate conclusion will settle for all time the "Indian question." Such a settlement will be an honor to the Government and a credit to the Indian. He will then pass out of our national life as a painted, feather-crowned hero of the novelist to add the current of his free, original American blood to the heart of this great nation.

To educate the Indian in the ways of civilized life, therefore, is to preserve him from extinction, not as an Indian, but as a human being. As a separate entity he can not exist encysted, as it were, in the body of this great nation. The pressure for land must diminish his reservations to areas within which he can utilize the acres allotted to him, so that the balance may become homes for white farmers who require them. To educate the Indian is to prepare him for the abolishment of tribal relations, to take his land in severalty, and in the sweat of his brow and by the toil of his hands to carve out, as his white brother has done, a home for himself and family.

Practical education is what he most requires—the knowledge of how to make a living, even under adverse circumstances. The first step is the acquirement of the English language. Without it he is powerless to transact intelligently the ordinary affairs of life, to dispose of the produce of his farm or the increase of his herds. Indian schools are therefore limited in text-book instruction to the ordinary common school branches. Higher mathematics, geometry, and astronomy have no place in the curriculum of schools supported by the Government for Indian children.

Common sense dictates that it is unwise to turn the whilom children of the forest out upon a farm with only those rudiments of an education which, while sufficient for the average white citizen with inherited

tendencies to struggle for a living, are inadequate to enable a red child to wring an existence out of frequently ungenerous soil and under adverse conditions. The Government must therefore advance a step further—toward paternalism, if you will—and teach its Indian wards how intelligently to plant and cultivate crops and reap the harvest. While doing this it must also instill a love for work, not for work's own sake, but for the reward which it will bring.

By the issuing of rations and the payment of annuities, lease money, and grass funds, the incentive to work has been removed, the Government freely giving to the red man that for which the white, the black, and the yellow must toil early and late. These latter do no work unless compelled by necessity to do so; neither will the Indian. Rations were a necessity in the past, but that day has gone except for the old, infirm, and physically incapacitated. The absurdity of the Government spending hundreds of dollars to educate an Indian to *work*, then, after teaching the necessity, sending him home to his reservation to be supported in idleness, is all too manifest. It were far better not to educate at all if education is to be nullified by unwise gratuities.

Give the Indian a white man's chance. Educate him in the rudiments of our language. Teach him to work. Send him to his home, and tell him he must practice what he has been taught or starve. It will in a generation or more regenerate the race. It will exterminate the Indian, but develop a man. Protect him only so far that he may gain confidence in himself, and let nature and civilized conditions do the rest.

Indian schools are carrying out the above policy in the face of many difficulties. Whether this policy is the best, time alone will determine. Results attained at present indicate that it is correct; that pursued through a few generations acquired habits will become fixed and be transmitted by heredity, thus establishing characteristics which distinguish the sturdy white citizen.

Indian education is hampered on the one side by the misguided, sentimental friendship of those who place the Indian upon too lofty a pinnacle, who contend that the white man's treatment of him, in the present and in the past, is cruel and inhuman, and, on the other side, by those who, in their greed for his lands and money, act upon the old theory, "No good Indian but a dead one." The Indian Office is the target of both these classes, who are prompt on all occasions to rush forward with advice as to the best methods of civilizing these people. Were the Department to follow these heterogeneous counsels, its policy would illustrate forcibly the fate of the man who shapes his conduct in accordance with the last advice received, and inevitably winds up in disaster and ruin. There is probably no department of the Government to which free counsel, abuse, and criticism are so lavishly given as to that which is charged with the management of Indian affairs. The advice of those who are sincerely interested in the welfare of these people, who have "no ax to grind," and who have had opportunity to study the difficulties of the situation from a practical standpoint, is always of value and carefully considered. All wisdom relative to the management of the red man is not by any means assumed by the Indian Office.

A great nation or a strong character is not developed in a day; neither is an Indian made a useful citizen. Slowly must old habits and customs be eradicated and new ones formed. A conservative course is

the only safe one. The Indian, under firm but kindly counsels, has developed and is developing those characteristics of mind and body which fit him to assume the guardianship of his own interests and become self-supporting. That some, even many, Indians who have been from childhood under the care of Government schools relapse into old habits is too true; nothing else could be expected. The young of the wild bird, though born in captivity, naturally retains the instincts of freedom so strong in the parent and beats the bars to secure it, while after several generations of captivity the young bird will return to the cage after a brief period of freedom. So with the Indian child. The first wild redskin placed in the school chafes at the loss of freedom and longs to return to his wildwood home. His offspring retains some of the habits acquired by the parent. These habits receive fresh development in each successive generation, fixing new rules of conduct, different aspirations, and greater desires to be in touch with the dominant race.

The Indian tribes are as diverse in habits and customs as the races of the Old World. To judge the civilization and capacity of Europeans by the single standard of the Albanians is to draw as false conclusions as to establish one rule for all Indians by the pattern of the Shebits or Chippewa, Sioux or Hopi, Comanche or Digger. Herein lies one of the great difficulties, and generalizations from one tribe are frequently at fault when applied to the whole number under the care of the Government.

The Indian school of the present is not the institution of the past generation. Mistakes are being corrected, and, while they are still imperfect, the schools are striving to raise the Indian character and prepare the young generation for the time when the parental hand of the Government must be taken away. The evolution of the school system may therefore be said to have led to the establishment of reservation and nonreservation schools. In the former local environment is a prominent factor; in the latter a wider reach is given the young Indian to acquire a more intimate connection with civilization in some of its best centers. It is true, however, that with the influx of population in the Indian country, the construction of railroads, and the building of cities, the line of demarkation between the older reservation and nonreservation institutions is rapidly disappearing.

While day schools are growing in importance, the Indian parent in only a few places has advanced sufficiently to appreciate education, so as to compel attendance. The day school is in itself a great civilizer, cultivating the refinements of life and dispensing the gospel of cleanliness. For some years to come it can not take the place of the boarding school, but is its most valuable adjunct. The day-school system is seen in its best phases on the Pine Ridge and Rosebud reservations in South Dakota. Scattered over these reservations are about 50 day schools, each in charge of a teacher and housekeeper. Children are brought to them from the camps, remain a few years, and are then transferred to the boarding schools and their vacant places filled by the younger generation of the Indians living in the vicinity.

The ideal system therefore is—and it could be carried out but for the excess in number of nonreservation schools—to enroll the young child of the camps in the day school, then pass him into the reservation boarding school, where he should remain until he has completed the sixth

grade, when, if he possesses the natural aptitude to acquire a trade or further education, send him to a nonreservation school. If for physical or mental disabilities this is undesirable, return him to his home. This is an ideal system, but for reasons over which the Department has no control it seems impossible of being carried into effect. Everything possible, however, is being done to bring about such a result, and new rules have been put in force limiting and defining the territory from which each nonreservation school may draw pupils.

As stated in the annual report of the Office last year, the number of nonreservation schools has been expanded beyond just limits. While the new rules for the collection of pupils for them have effected reforms, yet in the effort to secure pupils the desirability as well as eligibility of the material is too often neglected. Several hundred so-called "white Indians" have been returned to their homes, and it is now believed that the schools are practically freed from this class. This has caused some demoralization at a few schools where a large number were sent home. Superintendents have loyally cooperated in the matter to the end that the educational benefactions of the Government may be legitimately applied for the benefit of the real Indians If in furtherance of this idea, the number of nonreservation schools could be limited to the actual necessities of the service, the money thus saved could be profitably applied to building up and developing the home education of Indians in reservation day and boarding schools.

The nonreservation school idea has grown out of proportion to its legitimate sphere. If properly contracted and limited in scope, paradoxical as it may appear, its zone of usefulness would be expanded. With fewer schools of this class the struggle for pupils could be properly controlled, a better class intellectually and physically could be enrolled, with a consequent increase in effective results. The returned student being of a higher type would have resultant benefit on his people, which could not fail to elevate and civilize. The money spent by the Government on the dullard, or the physically weak boy or girl, who has been enrolled in these schools is practically wasted, while on the other hand that expended in educating in these distant schools the brightest youth of the tribe, with constitutions able to stand the strain of new climatic conditions, will introduce into the home life of the older Indians a leaven which begins to work from its introduction.

There is a grave necessity for additional educational facilities on the Navaho Reservation in New Mexico and on the San Carlos and White Mountain Apache reservations in Arizona. There are hundreds of children on these reservations who have never seen a school. The present schools there are filled to the limit of their capacity, and the field should be extended by boarding and day schools. The Flathead Reservation has only a small school in inadequate buildings, while the Cœur d'Alène in Idaho has none. These are all practically virgin fields for the exertions of the Government. The parents, knowing nothing of home education, are hostile to all nonreservation schools, but when the results of education can be brought to them through reservation schools they can easily be persuaded to send their children away.

The planting of reservation day and boarding schools is in furtherance of the "small community" plan of bringing the adult Indian into closer contact with the white teacher, matron, farmer, and mechanic.

It gives individualism in instruction, and furnishes object lessons for old and young. The Indian is gregarious, and that plan turns a natural tendency into the civilized colony idea.

INDIAN SCHOOLS AND THEIR PERSONNEL.

There were 257 Indian schools in operation during the fiscal year, of which number 91 were reservation boarding schools, 26 were non-reservation boarding schools, and 140 day schools. There were enrolled in all of these schools 24,357 pupils, with an average attendance of 20,876. For the proper care of the children of these several schools there were employed during that period 2,282 persons, of which number 111 were superintendents. All of these people have either been in the service for a long period or have been appointed through the medium of the classified Indian civil service.

As a general rule, in the boarding schools the immediate conduct of the pupils is committed to matrons, assistant matrons, industrial teachers, etc., and at the day schools a man is employed as a teacher, while his wife occupies the position of housekeeper. These persons are appointed upon merit, and while out of so large a number of persons connected with the service there are some who are not properly qualified for their positions, yet it is believed that the proportion of the disqualified is very small in comparison with the whole number.

For the general supervision of these schools five supervisors are appointed, and the whole field is divided into districts. They visit every school in the district assigned them from one to two and three times each year, going thoroughly into the capability and effective industry of the personnel of the school, the character and efficiency of the superintendent, and the moral conditions pertaining to the institution. Aside from these inspections there are five special agents, as well as seven inspectors, who look into the general conduct of the schools. These officials from time to time make reports of their investigations and conclusions.

The moral condition of the schools is of supreme importance, and supervisors are especially charged to look into it at every school visited. Whenever a supervisor or other conscientious inspecting official has reported that the moral tone of an Indian school was not good the superintendent or some employees, or both, have been relieved. Such occasions, however, are very few compared with the number of schools and the number of employees.

In a general report upon the condition of Indian schools to the Department United States Inspector James McLaughlin, who has for thirty-two years been continuously connected with the Indian service in various capacities, said:

> I regard the efficiency of the Indian schools as steadily advancing, and therefore a comparison between the conditions now and the conditions five, six, or more years ago as manifestly improved with a marked onward and upward tendency.

Gen. Frank C. Armstrong also, in a report last year deduced from his long service as an outsider, as an inspecting official, and as an Assistant Commissioner of Indian Affairs, says:

> I find on all reservations that I have visited that the schools are very much improved within the last six or eight years, or since the time that I visited them as an inspector. The attendance is much better, the class of employees has been improved,

the discipline and system advanced in every respect. I consider the whole Indian service, and more particularly the school service, greatly improved in every respect within the past ten years.

At various times during the past year there have been sensational newspaper articles bearing upon the question of morality at Indian schools. It is true that cases of the intercourse of the two sexes in some of the Indian schools, owing to lack of proper supervision, have happened in a few instances, but in every case where, from a careful investigation of the testimony and the evidence, it has been found to be due to culpable negligence of those charged with the care of the pupils, the negligent ones have been removed from the service.

The conditions which surround an Indian school are very materially different from those of the ordinary white school, and the same standard can not always be adopted in dealing with these classes. Children in white institutions of learning usually come from homes where every moral influence is thrown around them, where their own inherited tendencies are fostered for the upbuilding of a moral character. They are encouraged by parents, associates, and friends to be chaste and moral, and are thus by nature and environment, as well as inheritance, stronger to resist the temptations of this character than are Indian children. Pupils in Indian schools are generally kept in these institutions for twenty-four hours of the day for ten months in the year. The other two months they are returned to their homes in the camp, where they live surrounded by their own people.

The "sun dance" and other religious dances of a number of tribes have a very deleterious effect upon the young generation of Indian boys and girls, and while many of the brutal and bloody features of these dances have been eliminated within the past ten years, the character of some, from recent sworn reports of eyewitnesses, are obscene and degrading to such a degree as to make a description too revolting to print. If it were possible to restrict such "dances" to the old Indians the practice would soon die out, as the training of the younger generation in the schools will prevent their participating therein; but such restriction can not be made, as, in the cases in mind, every child, no matter of how tender an age; every girl, no matter that every womanly instinct is revolting against the custom, must under heavy penalties be present, and not only be present, but actually participate therein.

These dances of alleged religious enthusiasm disturb the moral training of boys and girls, interfere with school attendance, and can only result in nullifying the good work of the teachers. An inspecting official, in a very recent report upon a Middle West tribe of Indians, says:

> They held two medicine dances while I was at this agency. I attended one of them; and while they claim that it is a religious ceremony I hardly think it should be encouraged. It draws a crowd together of several hundred Indians for two or three days and encourages them in idleness. The Indian giving the dance bears all the expenses of it and gives presents besides, so that it frequently costs $200 or $300. On this occasion they were initiating a boy about 12 years of age, and his mother was bearing the expense. I have no doubt this ceremony at his age will have a stronger influence on him in later life than all his schooling.

Like all free people who have ranged the forests and plains, the North American Indian loves the pleasures of the dance and the poetry of motion, and therefore there may possibly be a few harmless Indian

dances; but such, if they exist, are an exception. Indian schools, however, recognize this love of dancing; and, to turn it from viciousness and harmfulness, it is usually customary to have social entertainments on certain evenings at the school, where the boys and girls can meet together and enjoy themselves as their civilized neighbors do, by participating in a well-regulated dance. It adds brightness to their monotonous round of duties and teaches politeness and courtesy to each other. The Indian dance, no matter if it is religious, should go with its earlier prototype, the bacchanalian dances of the ancient Greeks.

It is probably true that the majority of our wild Indians have no inherited tendencies whatever toward morality and chastity, according to an enlightened standard. Chastity and morality among them must come from education and contact with the better element of the whites. An Indian girl who returns home to her parents does not have the same restraints thrown around her as does the white girl. Superintendents, teachers, and other employees in Indian schools therefore receive scant support from the wild Indian parents at home, who can not appreciate the anxiety of white mothers to guard their offspring. It must be taken into consideration, in dealing with this vital question of Indian civilization, that it is not an easy matter in one generation to engraft our standard of morality, evolved from centuries of Christianity, upon the children of the forest, who have for generations followed the instincts of nature.

The difficulty surrounding those who are employed in Indian schools is extremely great. Charged with the responsibility of forming the moral characters of numbers of Indian children who do not appreciate the restraints with which our own children are familiar, and knowing these general conditions, the characteristics of the Indians, and the lack of home support, when cases of immorality among the pupils are reported they are not judged with the same degree of harshness as would be the case had they occurred in a white school.

Immorality, either in Indian children at school or in those who have control of them, is of course not countenanced by the Indian Department. Unfortunately, scandals occur in white schools, where all safeguards and inherited tendencies of civilization are thrown around both school and pupil. How much more so may it be in our Indian schools? Employees in Indian schools are selected from certification made by the Civil Service Commission. Their appointments are upon merit, and in all promotions an effort is made to reward meritorious conduct in the service. These employees, therefore, have every incentive to guard carefully the interests of the children committed to their charge. It is believed that they are, as a rule, moral, upright, and Christian men and women, devoted to their work of uplifting the red man and preparing him for citizenship.

Vacancies and original positions in the Indian school service are filled from lists of eligibles furnished by the United States Civil Service Commission when requested by this Office. From such certifications 648 persons received appointments during the past year. Of those appointed 306 declined. For the same period 86 persons were reinstated and 225 Indians given places at salaries above $300 per annum. This makes 959 appointments for the year and 653 acceptances.

The various positions in the school service are divided as follows: Supervisors, 7 white; superintendents, 111 white; assistant superintendents, 11 white; clerks, 45 white and 20 Indian; physicians, 23 white and 1 Indian; disciplinarians, 16 white and 13 Indian; teachers, 438 white and 69 Indian; kindergartners, 52 white; manual-training teachers, 8 white; matrons and housekeepers, 187 white and 42 Indian; assistant matrons, 95 white and 57 Indian; nurses, 30 white and 3 Indian; seamstresses, 109 white and 40 Indian; laundresses, 71 white and 64 Indian; industrial teachers, 78 white and 35 Indian; cooks and bakers, 136 white and 62 Indian; farmers, 43 white and 21 Indian; blacksmiths and carpenters, 69 white and 10 Indian; engineers, 45 white and 21 Indian; tailors, 12 white and 7 Indian; shoe and harness makers, 18 white and 14 Indian; gardeners, 17 white and 5 Indian; dairymen, 5 white and 1 Indian; Indian assistants, 41; miscellaneous positions, 62 white and 68 Indian.

WHAT IS AN INDUSTRIAL TRAINING SCHOOL FOR INDIANS?

All Indian schools are industrial training institutions. The central thought is work as a preparation for home life. The day, therefore, is divided so that one-half of the pupils are for three hours in the academical classes acquiring the knowledge of English letters, history, geography, arithmetic, etc., usually taught in the public schools of the white people; the other half of the day is devoted to industrial pursuits adapted to the age and sex of the pupils. The course of study in the class rooms is thoroughly coordinated with that of the field, the shop, and the home. The boys are taught carpentry, shoemaking, farming, wagon making, painting, tailoring, printing, dairying, gardening, masonry, baking, blacksmithing, plastering, harness making, forging, steam fitting, engineering, and firing. The girls are taught sewing, mending, housework, laundering, dairying, baking, cooking, care of poultry, and the multitude of "little things" which contribute to the successful housekeeper and home maker.

While all of the above are taught at the large nonreservation schools, there is a gradual reduction in the number of industries as the schools grow smaller. Each school must study its own capabilities, and industries are given suited to the students, their environments, and the money available for appliances and instructors.

The peculiarities of each tribe fix the native industries taught at the school. When the natural talent of the Hopi can be turned profitably to weaving, his children are instructed along those lines. The skill of the Mohave can be turned to basket making or the Oneida to beadwork. The native industry should not be developed so far that there is a destruction of the commercial value of the product when brought into competition with the machine-made articles of deft Yankee construction. There is an unknown value in the basket of the Indian squaw who month after month in a primitive tepee weaves her soul, her religion, her woes, and her joys into every graceful curve and color of her handiwork. Remove these beautiful, sentimental considerations from the basket and place it by the finished product of the white man's factory, and the idea that the native industry of the Indian can be developed into a successful one, by means of which to keep the wolf from the door, does not hold out much hope. Increase

and commercialize the native industry of the Indian, and its value readily falls by the inevitable law of supply and demand. For the present at least the teaching of native industries is receiving attention which will be given as long as it can be made profitable to the workers engaged in it.

The Indian appropriation act for the fiscal year 1904, approved March 3, 1903, contained this item:

> That in preparing implements and room for laundry work in all Indian schools arrangements shall be made for doing by hand such an amount of said work as may be sufficient to teach the female pupils the art of hand laundry work.

Immediately thereafter this provision was called to the attention of all the superintendents of schools, and they were requested to submit reports showing how the laundry work was done at the respective schools. Replies were received from all the schools, from which it was developed that at one-third of them all the laundry work was performed by hand, and at all the others either a good portion was so performed or classes were maintained to teach the female pupils this useful art of hand laundry work. Take a school of 150 pupils, one-half are girls, and of this number not more than one-third are above 12 years of age. To require this one-third to do all the laundry work for 150 pupils, including their bed linen, table linen, etc., and then go to school half the day, work under the matron cleaning up their dormitories, schoolrooms, dining rooms, etc., attending to the sewing and mending, assisting in the kitchen, dining room, looking after poultry, and the many other things which Indian girls have to do in an Indian school, savors largely of drudgery; therefore, while they are all taught as a part of their domestic training how to wash their own clothes, yet a steam laundry is absolutely essential, unless at least one-third of the girls enrolled are to be bound as slaves to the washtub.

While the different trades are taught in the larger nonreservation and in a few of the reservation boarding schools, yet most of the industrial training given Indian pupils is in agricultural pursuits in the broadest acceptation of the term. This Office is well aware of the fact that for some time yet, except in isolated and particular cases, the Indian can not successfully compete with the American journeyman and mechanic. Therefore the greatest stress is laid upon teaching him how successfully to farm his own allotment, to give him those underlying principles of agriculture, stock raising, and dairying which will enable the average Indian man to wring an existence from the too-frequently ungenerous soils the white man has allowed him to retain. To make him independent as far as possible, those branches of the mechanical arts such as horseshoeing, blacksmithing, setting a wagon tire, handling of ordinary carpenter tools are a part of the instruction of every boy in school. Agriculture is the basis of all industrial training. Nature, environment, and necessity will and should make at least nine-tenths of the Indian youth tillers of the soil and breeders of stock. The Government has been prodigal of land. Every Indian boy or girl can have a farm. Here he must make his home and his living, if possible. Industrial instruction is given to meet these conditions.

At several of the large schools specialized training in farming and stock raising is given. At Chilocco, in Oklahoma, every facility is

afforded the Indian boy to learn the best methods of cultivation of the soil and care of stock. It is being developed at Haskell Institute, near Lawrence, Kans., and the recent purchase of additional land both at this school and Phoenix, Ariz., will give ample facilities. At Salem, in the Northwest, more land has been secured. The idea will still further be elaborated at other institutions, in order that farming operations may be conducted under conditions of soil, climate, and methods similar to those which the Indian boy will find when he returns to his own home, which is within the territory from which the school draws its pupils.

Many of the reservation schools are located in the arid regions of the West. Irrigation ditches have been provided at a number of them, while the General Government, falling in with the idea of the reclamation of much of these arid areas, is giving special attention to the matter and providing funds for irrigation systems on the reservations. This being the case, instruction in farming by irrigation becomes of principal importance in the schools located in these rainless belts.

A number of reservation schools are surrounded by as fine farming lands as the country contains. The schools in Oklahoma, Kansas, Indian Territory, Wisconsin, Michigan, and Minnesota may be cited.

As a typical farm school on a reservation there is no better example than the one at Seger colony, on what was the Cheyenne and Arapaho Reservation in Oklahoma. This is an institution with about 125 children in attendance, divided about equally between boys and girls. In his annual report for the year Supt. John H. Seger states that, notwithstanding the floods and droughts, on the whole a very good crop was raised, and the results of farming, dairying, and stock raising were gratifying. About 200 acres of old land were cultivated, and there have been broken over 200 acres of new land by Indian labor. The product of the farm was 1,000 bushels of wheat, 700 bushels of oats, 150 bushels of rye, 1,400 bushels of corn, 300 tons of hay, millet, and fodder, valued in round numbers at $2,315. The increase of stock was 16 pony colts, 67 calves, 7 colts, 14 heifers, 57 lambs, 15 pigs, and 16 steers; all valued at $1,317.25, which, with beef, mutton, and pork, eggs, milk, butter, etc., brings the total value of all products up to $5,180.97.

The above makes an excellent showing when it is considered that only one white farmer superintends all this work, while the labor is performed by the boys, who work half a day at a time, going to school the other half. This kind of farming is practical from a business standpoint, as well as for its instructive value. Farming is thus taught as it should be by actually doing it.

Examples from other schools could be presented, but the above seem sufficient to indicate some of the practical and business results of the industrial training provided by the Indian Office.

As an evidence of the progressive spirit of the Indian in assimilating a portion, at least, of the civilization taught him in the schools, the reports of this Office show that in 1886 the number of Indians who wore citizen's dress wholly was 58,590, which number had increased in 1902 to 102,130; in 1887 the number of Indians who could read was 19,816 and the number who could use English for ordinary purposes was 25,255; for 1902 there were 47,081 of the first named and 62,616 of the latter.

In 1889 (the first year this item was reported) the value of the products of Indian labor sold to the Government was $71,260, in 1902 it had increased to $461,173; in 1889 the Indians sold products to others than the Government to the value of $499,333, and in 1902 to the amount of $1,552,624. A civilized community is generally gauged by the character of its public highways and roads, and it is noticeable that in very many parts of this country the improvement of these thoroughfares has not kept pace with progress in other matters. It is therefore of interest to note that in 1892 it was reported that the Indians had put in during the year 9,309 days of labor on their highways, while during 1902 this number of days was increased to 35,964. As is well known, the Indian loves a pony or burro, and his wealth in other days was counted by the number of these animals he possessed. But here also the civilizing process is in evidence. From 443,244 ponies and burros owned by him in 1890, the number has decreased to 344,646 in 1902, while for the same period his cattle increased from 170,419 to 288,884 head.

As an indication that the adult Indians are becoming tillers of the soil, the reports show that last year they cultivated 361,680 acres of land and raised 913,203 bushels of wheat, 742,869 bushels of oats, rye, and barley, 594,571 bushels of corn, 444,577 bushels of vegetables, 70,652 bushels of flax, 288,391 tons of hay, and made 134,781 pounds of butter; they sawed 6,512,000 feet of lumber and marketed 76,820,000 feet of timber; they had 1,493,451 acres of land under fence and built 433,801 rods of fencing; 11,453 families are said to be living on their allotments.

While the above data are brought as evidences of the Indian's material progress toward civilization under the educational system of the Department, yet a comparative study of the tables indicates such progress to be slow. It also presents the encouraging feature that, while slow, it seems to be sure, and with the changes of policy of late years the succeeding years should produce more rapid results.

Outing system.—As an adjunct to the industrial work of the schools the "outing system" is most valuable. This system consists in placing Indian boys and girls enrolled in certain schools out into the families of surrounding farmers, the boys for general farm work and the girls for various household duties. The "outing system" is brought to its greatest perfection at Carlisle, Pa., which large school is in a section peopled by thrifty farmers. In their homes the practical work of the farmer is learned by experience through several months of the year. The girls, under the tutelage of their good wives, learn domesticity and the care of the home. They usually attend public schools, and are paid a stipulated sum for their labor, thus learning the value of labor in dollars and cents and the resultant benefits of thrift. The great portion of the money earned is placed to their credit at the school, and in many instances quite a "nest egg" is turned over when they leave school in addition to their practical training.

As stated, the system is most effective in Pennsylvania, where local prejudices are not brought into play, and the ratio of the Indian population to the white is relatively infinitesimal. The results of the system in the West are somewhat problematical and experimental at present. The Indian schools at Salem, Oreg.; Riverside, Cal.; Phoenix, Ariz.; Santa Fe, N. Mex.; Haskell Institute, Lawrence, Kans., and several other points have with varying success carried out the "out-

ing system" for several years past. Whether it will be as successful as at Carlisle is for the future to determine.

The system has its element of danger as well as of good. The boys and girls are placed in families more or less remote from the school. For the time they are removed from the watchful eyes of the employees, and the superintendent can not absolutely know that the family where the child is placed is honorable, upright, and kind, even when that is its general reputation. But with this element of danger always present there have been only a few mistakes made.

The largest number of pupils placed under the "outing system" during any one month of the past fiscal year was as follows: Carlisle, Pa., 617; Salem, Oreg., 251; Riverside, Cal., 159; Santa Fe., N. Mex., 92; Albuquerque, N. Mex., 61; Phoenix, Ariz., 50; Haskell Institute, Lawrence, Kans., 49; and Riggs Institute, Flandreau, S. Dak., 8; a total of 1,287 pupils.

SCHOOL PLANTS AND THEIR IMPROVEMENTS.

The United States has invested in plants for the education of Indian children about $6,000,000. While many are new and modern in construction, the great majority, especially those on the reservations, are old, dilapidated, and badly located. Some of these are inheritances from the War Department in the shape of abandoned military posts. While their buildings may be good, yet they are not constructed in a manner fitting them to Indian school purposes.

Many Indian schools are located in the arid portions of the great West. The water supply for domestic and irrigation purposes is scant, and much money must be spent in order to conserve and develop it.

An Indian school is very different in many respects from a white public school. For the former the Government must supply a school building suitable for class rooms and assembly hall; also dormitories, kitchen and dining hall, shops, hospital, farm, barns, stables, etc. Employees must constantly be with the children, and in addition, therefore, there must be provided quarters and cooking and dining facilities for their use. Hence it will be observed that for a large school quite a considerable number of buildings is necessary.

In planning an Indian school plant, effort is made to adapt all the buildings to the purposes intended. Ventilation and hygienic devices are necessary that the health of the pupils may be properly conserved. The latest results of school architectural science are brought to bear whenever funds are available, even at the sacrifice of capacity. Lighting of schoolrooms and shops are of paramount consideration on account of the tendency of Indian children to diseases of the eye. Baths, lavatories, heat, light, and sewerage requirements are carefully planned for every plant. Modern systems are not provided as luxuries, but as essential to the health of the pupils. Imagine the condition of an Indian school of 200 pupils without an adequate system of sewage disposal. A sewer can not be successfully operated without an adequate water system, upon which depends a steam heating system, doing away with multitudes of separate fires, each a zone of danger. The water supply furnishes adequate bathing facilities. Electricity or gas supplies light and does away with dangerous coal-oil lamps.

Therefore, taking all these factors into account, the long distance usually from railroads, high prices of labor and material, it follows

necessarily that Indian school plants are expensive. But they are not more expensive than buildings of the same character for white children. It must not be overlooked that the only similar institutions for whites are the industrial and reform schools. The investigations of this Office disclose the fact that Indian school plants are constructed at less expense than these. While school buildings for the Indians are substantially constructed and are not displeasing architecturally, yet little money is spent on outside adornment. A fair comparison is invited with similar plants for white schools all over the country.

The appropriation for school buildings, sites, and sewers, and water, heating, etc., facilities for the fiscal year 1903 was $250,000, of which amount nearly half was used in what may be termed repair work. Out of the remainder several new plants were erected. This amount is not sufficient to keep the present Indian schools in repair, build hospitals, install lighting plants, improve water and sewerage systems, and erect several entirely new school plants where they are sadly needed.

CLASSES OF INDIAN SCHOOLS.

Indian schools are divided into (1) nonreservation boarding schools, located as a rule near the centers of civilization and away from the reservations; (2) reservation boarding schools, located within the borders of the Indian reservations; (3) day schools, situated near the camps and homes of the Indian parents.

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ABOLISHMENT OF AGENCIES.

In pursuance of the general policy which has been adopted, believing it to be for the best interests of the Indians to substitute for Indian agents bonded superintendents of schools, Congress, in the appropriation act for the current fiscal year, omitted appropriations for ten agents. They were located as follows: Cheyenne and Arapaho, Okla.; Fort Apache, Ariz.; Jicarilla, N. Mex.; Klamath, Oreg.; Omaha and Winnebago, Nebr.; Pima, Ariz.; Ponca, etc., Okla.; Sauk and Fox, Okla; Southern Ute, Colo., and Umatilla, Oreg. All of these agencies have therefore been placed in charge of the superintendents of the training schools located at the respective agencies.

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INDIAN TREATIES AND AGREEMENTS.

The question is frequently asked "How many treaties have been made with the Indian tribes in the United States and ratified by the Senate?" Senate Executive Document 95, Forty-eighth Congress, second session, page 132, gives the total number of treaties from 1775 to 1871 as 645, including a treaty made with the Six Nations, August 25, 1775, and ten others made prior to the Federal Constitution going into effect 1789. The annual report of this Office for 1881 is cited as authority, but in that report the list of treaties was arranged alphabetically by tribes which often duplicated the treaty reference. Without noticing this the entire list was counted.

I have caused a careful count to be made and find that the number of treaties made with the Indians and ratified by the Senate, including

the "Fort Laramie" treaty of September 17, 1851, is only 370. These treaties may be found in the United States Statutes at Large, as follows:

Volume 7	236	Volume 13	7
Volume 9	15	Volume 14	27
Volume 10	28	Volume 15	15
Volume 11	12	Volume 16	3
Volume 12	24	Volume 18	2

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INDIAN TRADERS.

The Indian appropriation act of March 3, 1901, provided that any person considered by this Office to be a "proper person to engage in such trade" should be allowed to carry on business within the Osage Reservation. In its last annual report this Office suggested that a similar policy might be carried out to advantage on other reservations, leaving Indian trade without restrictions save as to the character of the trader and his compliance with Office regulations. The Indian appropriation act of the 3d of last March extended this provision so as to make it apply to all Indian reservations. This allows practically free trade upon Indian reservations, except that a trader must be licensed as hitherto, must be a "proper person" to be allowed to reside among Indians, and must comply with the regulations of the Indian Bureau.

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SALE OF LIQUOR TO INDIANS.

The record for the past year demonstrates in a marked degree the activity of the officials of the Indian service in apprehending and prosecuting persons charged with having violated the law prohibiting the sale of intoxicating liquors to Indians. These officials have been hampered in the performance of such duty because of the difficulty experienced by them in securing evidence against the offenders. Requests for authority to employ detectives were frequently received, but the Office was powerless to grant them because there were no funds under its control applicable for such employment.

The need for the employment of detectives for the purpose of obtaining evidence against liquor sellers is shown in a report dated April 7, 1903, made by Special Agent Brewster, of the Department of Justice. He referred to the opinion expressed by the United States attorney for the district of Oklahoma that the only way to apprehend the saloon keeper who is known to be violating the law is to use Indians as detectives. In justification of such a course the United States attorney cited the methods of the Post-Office and Treasury Departments in detecting violations of law and contended that it was the only way to accomplish successfully the desired result.

The decision of Judge Hanford of the United States circuit court for the district of Washington in the case of the United States *v.* Bagnell et al., rendered during the September, 1898, term, held that a mineral location on land opened to entry by the act of July 1, 1898, on the Colville Reservation, Wash., was not "Indian country" within the meaning of the liquor law and practically opened the gate to the intro-

duction of liquor into that reservation. The commissioners of Ferry County, Wash., on the authority of that decision went so far as to issue licenses to dealers to sell liquor within the south half of the reservation.

Upon representations made by Mr. Albert M. Anderson, United States Indian agent at the Colville Agency, supplemented by a report from this office, the Department, on May 15, 1903, declared its unwillingness to accept the ruling of Judge Hanford as correct and expressed its disbelief that the act of 1898, subjecting the mineral lands of the Colville Reservation to entry under the mining laws, operated to destroy the character of the lands within that reservation as Indian country. The Department cited the opinion of the Attorney-General, dated October 4, 1898 (22 Opinions, 232), in which it was held that notwithstanding the extinguishment of the Indian title to specified tracts within the Indian Territory the Territory still remains Indian country. While the facts in respect to the Colville Reservation were somewhat different, it seemed to the Department that the same rule should be applied there and that it should be held that the allowance of mineral entries for portions of the land within the outer boundaries of the reservation does not take the reservation out of the class of lands properly designated as Indian country.

At the request of the Department the Attorney-General, on July 29, 1903, instructed the United States attorney for the district of Washington to institute proceedings against persons charged with selling liquor on the Colville Reservation, and if the decision of Judge Hanford was thought to be for the present controlling, to adopt some method whereby the question involved may be reviewed by the appellate court.

At a recent date practically the same question arose in respect to the town sites of Washunga and Red Rock, located respectively in the Kaw and Oto reservations, Okla. These town sites are entirely surrounded by Indian-reservation lands, and unless it be held that they are still Indian country it will be difficult to prevent the introduction and sale of liquor there.

Several investigations of alleged infractions of the liquor law have been made by special agents of the Department of Justice, and numerous prosecutions and convictions of offenders have been had during the past year.

EXHIBITION OF INDIANS.

But few requests for permission to engage Indians for exhibitions and shows have been received during the year, owing to the fact that the policy of the Department not to authorize their engagement for such purposes has become quite generally known. All such requests have been refused. With one exception, requests of officials in charge of State or county fairs or festivals, that Indians from various agencies be allowed to participate as an attraction, have also been refused. The exception was in the case of the annual carnival and festival at Denver, Colo., as to which the Department telegraphed the mayor of Denver, August 23, 1902, as follows:

Your telegram 21st received. Department for several years has consistently declined to permit Indians to take part in exhibitions, but last year waived rule in

case of twenty-fifth anniversary of admission your State into the Union, held at Colorado Springs, on guarantee that Indians should take part only in historical parade. Practice of Indians camping your city for past several years was without Department knowledge or consent, as is reported visit of Arapahoes and Shoshones to Cheyenne. But for purpose stated in your telegram and guarantee of expenses, including return, will not object to Indians named going to Denver, providing also that they be properly guarded against excesses.

May 21, 1903, Jacob White Eyes reported that 8 Navaho Indians were stranded at Coney Island, N. Y., without means of reaching their homes; May 19, a Tuscarora Indian was reported as stranded in St. Louis; June 13, David P. Dyer, United States district attorney for east Missouri, reported 16 Indians from the Kiowa Agency, Okla., stranded in St. Louis from a Wild West show; and July 31, the United States district attorney at Janesville, Wis., reported that 16 Pine Ridge (S. Dak.) Sioux were left by a show at Janesville without means of getting home. In all four cases they were advised that as they had taken the responsibility of leaving their reservations without permission they would have to look to their employers for help, and that this Office had no funds to aid them.

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IRRIGATION.

The Indian appropriation act for the last fiscal year (1903) contained an appropriation of $150,000 for construction of ditches and reservations, purchase and use of irrigating tools and appliances, and purchase of water rights on Indian reservations, and authorized the employment of not exceeding two superintendents of irrigation.

Two irrigation engineers were employed under this appropriation, George Butler at large and John B. Harper on the Pueblo and Jicarilla reservations in New Mexico; and one, Walter B. Hill, in charge of construction on the Crow Reservation, in Montana, was paid from funds belonging to the Crow Indians.

Of the above appropriation $120,950 has been expended, as follows:

For the Pueblos of New Mexico	$11,200
Crow Reservation, Mont	39,000
Southern Ute Reservation, Colo	11,100
Walker River Reservation, Nev	2,350
Western Shoshoni Reservation, Nev	3,000
San Carlos Reservation, Ariz	9,300
Pima Reservation, Ariz	15,000
Navaho Reservation, Ariz	13,000
Klamath Reservation, Oreg	7,000
Mission reservations, California	10,000
Total	120,950

Some $4,000 more has been expended on other reservations in small amounts, leaving a balance of about $25,000 at the present time, which will probably be reduced to $12,000 or $15,000 by the payment of outstanding liabilities.

The Crow Indians having expended nearly $600,000 of their own funds in the construction of systems of irrigation, it was found necessary to use the appropriation for irrigation to complete their largest

system. When completed, this system will be one of the finest and best constructed in the country. Some $35,000 more will be required besides the cost of the necessary laterals, amounting, according to the estimate of Inspector Code, to about $250,000.

The appropriation for the current fiscal year is $150,000, the employment of four skilled irrigation engineers being allowed. In addition to Messrs. Butler and Harper, Messrs. Walter B. Hill and James R. Meskimons have been appointed superintendents of irrigation.

The expenditure of $142,265 has already been authorized, as follows:

Yakima Reservation, Wash	$45,434
Zuñi Reservation, N. Mex	40,000
Pueblos, N. Mex	5,800
Pala Reservation, Cal	13,880
Crow Reservation, Mont	15,000
Western Shoshoni Reservation, Nev	5,000
Navaho Reservation, Ariz	3,885
Salaries of superintendents and small amounts on other reservations	13,266
Total	142,265

It has been found necessary to deny applications for funds greatly needed for work on other reservations, including $20,000 to complete the Big Horn Canal on the Crow Reservation.

Mission Indians.—It is particularly gratifying to note the excellent results obtained during the past year through the effort made to secure water for irrigation, by means of artesian wells, for the Mission Indians of California, residing on the Torros and Cabezon reservations. Twenty-two wells were bored under a contract with the Coahuila Development Company, of Los Angeles, Cal., and an aggregate flow of 209.20 miner's inches of water was obtained. In addition, three wells were bored by the company, outside of its contract, on section 16, Torros Reservation, developing a total flow of 26.25 miner's inches. The water so obtained will beyond question prove a great boon to the Indians. With plenty of water they will now be able to raise various crops on lands that heretofore have been regarded as mere wastes of sand and sagebrush.

Navaho Reservation.—July 14, 1902, this office laid before the Department plans for beginning the construction on the Navaho Reservation of irrigation ditches leading from the San Juan River, and recommended that George Butler, superintendent of irrigation, be sent there for the purpose of surveying and staking off lines for three or four small ditches leading from the river at the most practicable points and where the largest quantities of good lands might be irrigated.

Superintendent Butler submitted his report to the office May 15, 1903. He surveyed and staked off two ditches, viz., the Sandoval ditch and the upper San Juan ditch. The former heads on the left bank of the river about 30 miles west of the eastern boundary of the reservation. He reported that there was nothing difficult of construction, the line running mostly in earth for its entire length of about 4½ miles, and estimated the cost to be $10,644.63. The acreage reclaimable under the line is 822.4 acres, at a cost of $12.94 per acre. This ditch has been constructed by Supervisor Shoemaker, under authority from the Department, at a cost of about $10,000. It is known as Ditch No. 2.

The San Juan ditch was estimated by Superintendent Butler to cost $66,836.81. It has not been constructed. Mr. Shoemaker, supervisor

of ditches, is of the opinion that the irrigation funds can be more profitably expended in the construction of smaller ditches leading from the San Juan River. He accordingly recently submitted an estimate to construct ditch No. 3, surveyed by himself, at a cost of $3,885.87. Authority was granted for the expenditure of this sum by Supervisor Shoemaker, who had been made a special disbursing officer and had given bond. The work of irrigating the Navaho lands along the San Juan River will be pushed and the Indians encouraged to locate upon and cultivate the lands when irrigated. This course seems to be the only way to place the Navaho in a position to become self-supporting and comfortable.

SALES OF INDIAN LANDS.

Inherited Lands (act May 27, 1902).—The amended rules for the conveyance of inherited Indian lands approved October 4, 1902, provide that a list of such land as is to be offered for sale must be posted in the office of the Indian agent or other officer in charge for ninety days from the first Monday after a petition for the sale of the land has been filed. By reason of this amendment no deed for inherited Indian land was approved by the Department until March 4, 1903. Since that date the sale of inherited Indian land has steadily progressed, and it appears from the volume of business being transacted that the Indian heirs are, as a rule, taking advantage of the law authorizing them to sell and convey such land as is inherited by them from some deceased Indian allottee.

The descent and distribution of allotted Indian land is governed by the laws of descent in force in the several States and Territories wherein the land is situated. There is some doubt as to whether this provision is the best that could have been made, for under the law each member of the Indian tribe received an allotment without regard to age or sex, thereby distributing the tribal real property among men, women, and children. Certain unusual conditions arise by reason of this distribution, and the application of such laws of descent to the real property so distributed in some instances works an injury to the Indians and in others creates much inequality. The injury arises where a white man has married an Indian woman and subsequently deserted her, leaving more or less offspring of the marriage. In such instances, if these children die, the white husband, as a rule, inherits all of their allotted land to the exclusion of the mother and the surviving brothers and sisters, if any, who in equity are entitled to at least a portion of it. The inequality arises largely from the fact that as a rule these laws of descent provide that the father shall be entitled to all the estate owned by any deceased child who dies without issue, thus depriving the wife and surviving children of any share in the property.

Enough land has been conveyed to test thoroughly the practicability of the amended rules, and they have so far met all requirements, and a few amendments of an explanatory nature rather than amendatory are all that have been found necessary.

* * * * * * *

It is believed that these rules protect the interests of the Indian heirs as fully as they can be protected under the law, and at the same

time they are in no way complex and leave the Indian heirs to the free exercise of their discretion in determining whether or not they will sell their inherited land.

* * * * * * *

The following table shows the amount of inherited Indian land sold to and including September 15, 1903, the location of the same, and the average prices paid:

TABLE 11.—*Sales of inherited lands under act of May 27, 1902.*

Location of land sold.	Number of acres sold.	Total proceeds.	Average price per acre.
Cantonment, Okla	633.06	$6,560.40	$10.36
Cheyenne and Arapaho, Okla	1,980.45	31,584.50	15.94
Grande Ronde, Oreg	80	914.00	11.42
Kiowa, Okla	160	8,510.00	53.18
Leech Lake, Minn	45.25	226.25	5.00
Omaha and Winnebago, Nebr	3,845.33	89,939.25	23.38
Oneida, Wis	44	700.00	15.90
Pawnee, Okla	1,439.26	19,754.32	13.72
Ponca, Oto, and Oakland, Okla	12,298.63	235,948.38	19.18
Potawatomi and Great Nemaha, Kans	2,149.78	50,730.00	23.59
Quapaw, Ind. T	1,338.30	24,986.60	18.67
Sauk and Fox, Okla	8,611.89	94,976.00	11.02
Santee, Nebr	2,313.40	29,126.00	12.59
Shawnee, Okla	1,271.40	31,471.00	24.67
Siletz, Oreg	98.51	620.00	6.29
Sisseton, S. Dak	3,710.10	55,441.37	14.94
White Earth, Minn	160	2,300.00	14.37
Yankton, S. Dak	4,314.63	73,385.18	17.00
Total	44,493.99	757,173.25	17.01

TABLE 12.—*Recapitulation of sales of Indian lands.*

Indians.	Conveyances.	Area.	Valuation.	Average per acre.
Citizen Potawatomi, Oklahoma	109	11,813.20	$86,314.20	$7.31
Absentee Shawnee, Oklahoma	47	4,445.00	42,136.96	9.48
Peoria, Indian Territory	15	1,149.70	16,126.60	14.00
Miami, Indian Territory	6	490.00	9,160.00	18.69
Wyandot, Indian Territory	4	112.00	3,340.00	29.82
L'Anse Chippewa, Michigan	80	6,098.61	17,435.00	2.86
Bad River Chippewa, Wisconsin	6	366.04	3,068.90	8.39
Red Cliff Chippewa, Wisconsin	2	120.00	735.00	6.12
Saginaw, Swan Creek, and Black River Chippewa, Michigan	18	307.00	4,187.50	13.54
Total	287	24,901.55	182,504.16	7.33
Inherited lands	.....	44,493.99	757,173.25	17.01

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LEASING OF INDIAN LANDS.

ALLOTTED LANDS.

The terms for which Indian allotments may be leased were given in the annual reports of this office for the years 1900 and 1901. The maximum is three years for grazing lands or farming and grazing, and five years for farming, business, and mining; except that unimproved lands on the Yakima Reservation, Wash., may be leased for not exceeding ten years for agricultural purposes. All approved grazing leases for terms in excess of one year provide for fencing the lands,

in addition to the cash rental, and all approved farming and grazing leases for terms in excess of two years have provision either for placing some substantial improvements on the premises, or for breaking new lands, or for both.

The amended rules governing the leasing of allotted lands, approved March 21, 1902, provide that—

> Every adult male able-bodied Indian not engaged in some permanent business or occupation by which he is gaining a livelihood for himself and family will be required to reserve not less than 40 acres of cultivable land from his own allotment for occupancy and cultivation by himself, which shall always be exempt from leasing.
>
> Adult male Indians not wholly disqualified by physical or mental infirmities from working a portion of their allotments, but who may be less able than those not so disqualified, will be required to work or manage a part of their allotments, to be regulated and determined by the actual conditions in each case, to be fully and conclusively shown in the applications for permission to lease.
>
> In both of these cases the allottees will be permitted to receive a portion or percentage of their lease money from that portion of their allotments that may be leased, the remainder to be retained until the expiration of the lease period, whenever, in the discretion of the agent, such action will not work a hardship to the allottee.

October 13, 1903, the Department amended the rules relating to mining leases on allotted lands, as follows:

> No applications for mining leases will be considered by the Department, unless specific permission has first been granted by the Department for negotiating for the same with the individual Indians whose lands are sought to be leased.

* * * * * * *

CHIPPEWA OF MINNESOTA.

Substantial progress has been made in carrying into effect the provisions of the act of January 14, 1889 (25 Stat., 642), relating to allotments to Chippewa Indians, cession of their lands, and sale of their pine. The provisions relating to classifying and disposing of the pine lands were modified by the act of June 27, 1902 (32 Stat., 400).

The allotments to the Leech Lake Pillager on the Leech Lake Reservation have been readjusted and the amended schedule was approved on October 14, 1903. A supplemental schedule of allotments to the Leech Lake Pillager, the White Oak Point and Sandy Lake bands, and the Cass Lake and Winnibigoshish Chippewa, who had not previously received allotments, has been submitted and now awaits examination in this Office.

Last May the Red Lake Chippewa declined to accept the provisions of section 11 of the Indian appropriation act of March 3, 1903 (32 Stat., 982–1009), providing for the sale of 256,152 acres of land comprising the western portion of the diminished reservation. The act provided for the sale of the lands by the Secretary of the Interior to the highest and best bidder, subject to the homestead laws of the United States, at not less than $4 per acre.

The Commissioner of the General Land Office, on November 10, will open to entry and settlement 766,607.20 acres of agricultural lands on the ceded portion of the Red Lake Reservation, and 2,279.96 acres on the four ceded townships on the White Earth Reservation, the lands to be disposed of to actual settlers, under the homestead laws, as provided for in section 6 of the act of January 14, 1889.

During the year 4,318 trust patents have been delivered to the Mississippi Chippewa on the White Earth Reservation. The work of

making allotments to those who by inadvertence were omitted from the original schedule has also progressed, but the schedule of these additional allotments has not yet been submitted for approval.

SETTLERS ON NORTHERN CHEYENNE RESERVATION, MONTANA.

The Indian appropriation act approved March 3, 1903 (32 Stat., 982), provides $2,965 for the payment of settlers for improvements upon certain lands situated within the boundaries of the Northern Cheyenne Reservation, Montana.

On January 16, 1901, James McLaughlin, United States Indian inspector, transmitted to this Office agreements made by him with seven additional settlers found by a survey to be within the Northern Cheyenne Reservation. These negotiations had been conducted under Department instructions of December 11, 1900. The Office recommended on March 20, 1903, that Inspector McLaughlin be instructed to visit those settlers and obtain from them deeds conveying any land to which they have any right or title and the improvements thereon.

The settlers who executed agreements for the sale of lands and improvements are as follows: Elbridge D. Weston, $800; Robinson Johnson, $300; Thomas Wood, $750; George Wood, $115; John H. Sprague, $400; Ernest E. Sprague, $250, and Martha V. Wood (née Sprague), $350. When the deeds shall have been obtained and approved by the Department, payment will be made to these settlers and thus the subject of settlers within the Northern Cheyenne Reservation will be closed.

WADSWORTH TOWN SITE IN PYRAMID LAKE RESERVATION, NEV.

A clause contained in the Indian appropriation act approved July 1, 1898 (30 Stat., 571–594), authorized the inhabitants of the town of Wadsworth, in the county of Washoe, State of Nevada, "to proceed and acquire title to the town site of such town under the provisions of section 2382 of chapter 8 of the Revised Statutes of the United States." July 12, 1902, this Office reported to the Department that the inhabitants had taken no steps under the act to obtain title to the lands occupied by them, and recommended that a survey and plat be made of the town site and that the lots therein be disposed of in accordance with the provisions of section 2384 of the Revised Statutes.

The matter was referred to the Commissioner of the General Land Office for report and recommendation, which were duly made; but because of uncertainty as to the precise location of the town, he was directed, September 19, 1902, to take such steps as were necessary to determine definitely its location with regard to the approved plats of survey. On March 20, 1903, the Commissioner made a report, based upon the report of the examiner of surveys, who had made an examination in the field, and stated, among other things, that a change in the track of the railway would leave the town of Wadsworth 2 miles from the main line, and that inasmuch as the town was supported wholly by the railway company's repair shops at that point, the present town site would probably be abandoned.

April 14, 1903, the Department advised the General Land Office that in view of the fact that the inhabitants of the town of Wadsworth had taken no steps as contemplated by the act of July 1, 1898, it was believed that it was not necessary or desirable under all the circumstances to proceed in this matter under section 2384 of the Revised Statutes. Thus the matter rests.

WALKER RIVER RESERVATION, NEV.

In carrying out the provisions of a clause in the Indian appropriation act approved March 3, 1903 (32 Stat., 997-998), James McLaughlin, United States Indian inspector, made an examination of the lands embraced within the Walker River Reservation, Nev., with a view to the selection of irrigable tracts for allotments to the Indians, and nonirrigable lands for the pasturage of their live stock. His report of June 18, designated six townships as necessary for the use of the Indians for allotments and grazing lands. The estimated cost of surveying the entire reservation was placed at $11,138.70, including inspection of the work. This was the estimate of the surveyor-general of Nevada. The cost of surveying the six townships, it was thought, would approximate $6,000, while the cost of the inspection of the work would not materially exceed $3,000. Office report on this subject was made to the Department July 15.

The matter was referred to the General Land Office, which expressed the opinion that public interests would be subserved by completing surveys within the entire reservation, but that the survey and subdivision of the six townships for allotments should first be completed, which opinion was concurred in by Inspector McLaughlin, the surveyor-general, and this Office. It is hoped that the work of making allotments to the Indians may be accomplished at an early date and the way prepared for opening the surplus lands to settlement.

ALLOTMENTS TO NEW YORK INDIANS.

On December 15, 1902, the House of Representatives passed a bill (H. R. 12270), known as the Vreeland bill, providing for the allotment of lands in severalty to the Indians entitled to reside upon the Cattaraugus and Allegany reservations (excluding the Tonawanda band of Seneca Indians), in the State of New York.

The bill as it passed the House of Representatives provides for the appointment by the President of a commission to allot the lands of these reservations, with the consent of the Indians, according to their appraised value and for the patenting of the lands to the allotees in a manner similar to the patents issued under the general allotment act of February 8, 1887 (24 Stat., 388). It also provides that a patent in fee may be issued within one year after the allotments have been made to any allotee who shall satisfy the Secretary of the Interior of his ability to manage his own affairs.

The bill excepts from allotment the lands within the limits of the villages of the Allegany Reservation, surveyed and located pursuant to the act of February 19, 1875 (18 Stat., 330), and also the lands of the Cattaraugus and Allegany reservations that have been leased under

authority of Congress for other than oil purposes. Each lessee of such leased lands, other than an oil lessee, is permitted to acquire title in fee to the land leased by him by paying therefor a sum of which 4½ per cent shall equal the annual rental of the land. He must also pay his proportionate share of the sum of $200,000 proposed by the bill to be paid to the Ogden Land Company in liquidation of its claim affecting the Cattaraugus and Tuscarora reservations, if that claim shall be held by the courts to be valid.

Section 6 of the bill refers to an action pending in the supreme court of the State of New York brought to determine the validity of the Ogden land claim, and provides that if that action shall terminate in favor of the company the Secretary of the Treasury shall use $200,000 of the amount appropriated by Congress in payment of the judgment of the Court of Claims in favor of the New York Indians in purchasing the interest of the Ogden Land Company in and to the lands of the three reservations before mentioned.

On January 8, 1903, Senator Quay submitted an amendment to this bill so as to except any railway corporation from the operations of section 4 and to vest in such corporation the title in fee to the land used or occupied by it upon payment to the Indians of a gross sum instead of an annual rental therefor.

A subcommittee of the Senate Committee on Indian Affairs was authorized at the last session of Congress to sit during the following recess for the purpose of investigating the subject of allotments to the New York Indians. This was the only important action taken by the Senate on the Vreeland bill.

One feature of the bill that has been more or less criticised, and which I have heretofore felt should not receive the approval of Congress, is the proposed taking of $200,000 from the Indian funds and applying the same to the payment of the Ogden Land Company's claim; but I am now thoroughly convinced that it is the proper thing to do. There is another provision in the bill that ought, in my opinion, to be stricken out—that which submits it to the Indian tribe for ratification. If the enforcement of the bill, should it become a law, depends upon the consent of the tribe, it will be a long time before any change is seen. I believe that the bill should be enacted by Congress, but with the provision which requires the obtaining of the consent of the tribe thereto eliminated.

* * * * * * *

AGREEMENT WITH FORT BERTHOLD INDIANS, NORTH DAKOTA.

An agreement was negotiated with the Indians of the Fort Berthold Reservation, N. Dak., on the 25th day of June, 1902, by which they ceded to the United States 208,000 acres of land. This agreement was submitted to Congress at its last session, but was not ratified. It is hoped that it will be ratified at the coming session of Congress.

DIVISION OF KANSA (OR KAW) LANDS, OKLAHOMA.

The agreement of the Kansa (or Kaw) Indians for an equal division of their tribal lands and funds was ratified by the act of July 1, 1902 (32

Stat., 636). Section 1 of the agreement provides that each member of the tribe shall select a homestead of 160 acres, and that the remainder of the lands shall be equally divided among them by a committee appointed for this purpose. The homesteads are inalienable and nontaxable for a period of twenty-five years, and the allotments are exempt from taxation as long as the title remains in a member of the tribe, not to exceed a period of twenty-five years, and shall not be sold or encumbered in any way before the expiration of ten years.

However, section 10 of the agreement provides that the Secretary of the Interior, in his discretion, at the request of any adult member of the tribe, may issue a certificate authorizing him to sell and convey any or all lands deeded him by reason of the agreement, and may pay such member at the next annual payment his or her pro rata share of the funds of the tribe if the Secretary shall find such member to be fully competent and capable of managing and caring for his or her individual affairs. Upon the issuance of such certificate the lands, both homestead and surplus, shall become subject to taxation.

The completed roll shows 247 names. The schedule of homestead allotments was approved on March 24, and the schedule of additional allotments on June 27, 1903. The homestead deeds have been executed and delivered; the allotment deeds have been executed, but not yet delivered.

In accordance with the provisions of section 7 of the agreement, the south half of the southeast quarter of section 26, township 27, range 4, was set aside for town-site purposes. The land was surveyed into lots, blocks, streets, and alleys by Charles F. Leech, civil engineer, and the town site was named Washunga after the principal chief. The lots were sold at public auction to the highest bidder on June 25 to 30. Five hundred and twenty-four of the lots were sold, bringing $6,065. One lot is occupied by a Government building and 59 lots remain unsold. The deeds for the town lots have been executed in favor of the successful bidders, but have not yet been delivered.

JOSEPH'S BAND OF NEZ PERCÉ IN WASHINGTON.

A bill (Senate 5311) was introduced in the last Congress for the relief of Joseph's band of Nez Percé Indians. This bill provided for the payment to Joseph and his band of $382,827.16 as the aggregate amount due them for lands in Indian (now Oklahoma) Territory conveyed to the United States in trust for their use and benefit by the Cherokee Nation by deed dated June 14, 1883, in pursuance of an item contained in the sundry civil appropriation act approved March 3, 1883. The bill also provided for the share of Joseph and his band in the sum of $1,686,622 appropriated by the act of August 15, 1894, to carry out the provisions of the agreement with the "Nez Percé Indians of Idaho," concluded May 1, 1893, and for the value of the lands upon the Nez Percé Reservation in the State of Idaho, which it is claimed should have been allotted to Joseph and his band.

On January 22, 1903, this bill, together with all the accompanying papers, was by resolution of the Senate referred to the Court of Claims under the act entitled "An act to provide for the bringing of suits against the Government of the United States," approved March 3, 1887. The court is authorized to proceed with the same in accordance with

the provisions of that act, and to report to the Senate what amount or amounts, if any, are legally and equitably due Joseph's band of Nez Percé Indians under the various items of claims set forth in the bill.

A petition has been filed in the Court of Claims, styled "Joseph's Band of Nez Percé Indians *v.* The United States," containing certain allegations founded on the bill. This petition was referred on June 30, 1903, to this Office for report. Office reply of August 13 gives a full history of Joseph's band and the alleged claims, and expresses the opinion that the Government does not owe them anything, and that the ends of justice would be met should the Court of Claims so find.

PUYALLUP LANDS, WASHINGTON.

The Indian appropriation act of March 3, 1893, provided that for ten years from that date the Puyallup Indians should not have the power to alienate their allotments except under the superintendence of the Puyallup commission. February 14, 1903, the Department decided that under this act and an act of the legislature of the State of Washington dated March 22, 1870, the Puyallup allottees, at the expiration of the ten years, would have power to lease, encumber, grant, and alienate their lands without restriction, as any other person might do under the laws of the State of Washington. Clinton A. Snowden, Puyallup Indian commissioner, was advised of this decision on February 20, and given instructions accordingly.

His report of the 20th of last June shows that the removal of the restrictive clause upon the sale of the Puyallup lands under the laws above cited has been a detriment to the Indians and will result disastrously to them. As was to be expected the more worthless of the Indians were ready to sell their land for less than it is worth as soon as permitted to do so. Some of them did this promptly. One family, for instance, sold 40 acres for $300 that was easily worth $2,000. Two others traded their half interest in a 40-acre tract worth at least $100 per acre for a saloon, ran the saloon one night, were arrested by the police at midnight, and next day what was left of their stock of liquors was seized by the sheriff. There is no law to prevent an Indian or a white man from throwing his property away if he desires to do so.

Several things have occurred which embarrass the Indians in the sale and lease of their lands, preventing them from getting full value and sometimes from making any sales or leases. Titles to their lands are clouded and the groundwork for much litigation is being laid. Such things give designing people increased means of taking advantage of them.

One Frank Ross, who made contracts with many of the Puyallup Indians in 1889 for the purchase of part of their allotments, has now brought suit in the superior court against the Indians; and white people to whom parts of these allotments have since been sold by the Puyallup commission have asked the court to determine to whom the balance of the purchase money due on contract shall be paid. These suits are causing much anxiety among both Indians and white people. Most of the parties defendant have applied to Commissioner Snowden to know what the Government will do for them, and some of them have argued at great length that the Government ought to make good the title to the land which it has sold to purchasers who have relied upon it to do so.

Mr. Ross has already made settlements with several parties. From the white people he usually asks to be reimbursed the money he originally paid for his contracts, and he appears to have settled on this basis. Where the Indians have lands remaining unsold he demands that they transfer to him enough to reimburse him for all he paid them, and the Indians are at a loss to know what to do with respect to these Ross contracts.

Mr. Ross has instituted suit against the estate of Frank Santiago and certain other defendants (whites), purchasers of lands covered by patent issued to Santiago. The facts in the case were reported to the Department June 20, 1903, with the recommendation that the Department of Justice be requested to direct the United States attorney to appear in the case and defend the rights of the Indians interested. It is hoped that this will be done and that the case will be made a test one for the future guidance of the whites as well as the Indians in regard to the so-called Ross contracts.

The case of the Puyallup Indians illustrates the fact that it is bad policy to remove the restrictive clause from the sale of Indian lands and permit allottees and owners to sell them without any Government supervision. These Indians are disposing of their lands for an inadequate consideration and are being defrauded and swindled. I am of the opinion that Indians in all cases should be aided and protected by the Government in making land sales. This is the case in the sale of inherited Indian lands, provided for by section 7 of the act of May 27, 1902 (32 Stat., 245–275), and this course appears to be resulting in good to the heirs of deceased allottees.

WENATCHI INDIANS, WASHINGTON.

After carefully investigating the subject on the ground, and conferring and conciling with the Indians, Agent Anderson of the Colville Agency reported September 8, 1902, that in his opinion the Wenatchi Indians should not be removed to the Colville Reservation as authorized by the Indian appropriation act of May 27, 1902 (32 Stat., 260); that the Indians nearly all held lands in the vicinity of Mission and Wenatchi of excellent quality, better than could be provided for them on the reservation; that they were quite comfortably situated and fairly prosperous; that they were very averse to leaving their homes and in fact were greatly exercised over the prospect of their proposed removal; and that to remove them would not only be an injustice but would have a tendency to retard their future progress. It appears that the general condition of these Indians and their situation as to land holdings were misrepresented by interested parties, the evident object being to secure the valuable lands that would be surrounded or vacated by the Indians.

Seven of the Wenatchi who had no lands were removed to the reservation, and November 29, 1902, the Department granted authority for their location thereon and for the expenditure of $1,000 of the $12,000 appropriated by the act of May 27, 1902, to provide them with suitable homes, necessary tools and implements, and temporary subsistence.

FISHERY RIGHTS OF YAKIMA IN WASHINGTON.

A bill was filed July 11, 1895, in the United States circuit court for the district of Washington, southern division, to enjoin Winans Brothers from interfering with the fishery and other rights claimed by the Yakima Indians under their treaty. Recently a decision was rendered in the United States circuit court for that division dismissing the bill. On June 25, 1903, the Attorney-General transmitted to the Department a copy of a letter addressed to him on June 16 last by the United States district attorney for Washington, and stated that the opinion of the court, the decisions therein cited, and the report of the master sufficiently disclosed the issues by pleadings and the court's position and rulings thereon.

As then advised, he was inclined to think that an appeal should be taken from the decision, but he asked to have the views of the Department as to the advisability of such action before issuing instructions to the United States attorney. The papers in the case were referred to this Office for report July 30, 1903. The Office replied that as testimony had been taken, report made thereon by the master, and a decision rendered by the court, the case was in condition for appeal to a higher court and for the rendition of a final decree, which would govern not only in this case but in cases of similar nature which have already arisen among the Yakima Indians, respecting their fishery rights, and which are likely to arise in the future. The Office is not advised as to whether an appeal has been taken, as suggested.

Very respectfully, your obedient servant,

W. A. JONES,
Commissioner.

The SECRETARY OF THE INTERIOR.

REPORT OF THE COMMISSIONER OF PATENTS.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 14, 1903.

SIR: In compliance with your request I beg to submit herewith the following report of the business of the United States Patent Office for the fiscal year ended June 30, 1903:

Applications and caveats received.

Applications for letters patent	49,199
Applications for design patents	801
Applications for reissue patents	156
Applications for registration of trade-marks	2,530
Applications for registration of labels	1,208
Applications for registration of prints	362
Caveats	1,767
Total	56,023

Applications awaiting action.

Number of applications awaiting action on the part of the office on July 1, 1903. 9,842

Applications for patents, including reissues, designs, trade-marks, labels, and prints.

June 30, 1894	39,206	June 30, 1899	40,320
1895	41,014	1900	45,270
1896	45,645	1901	48,075
1897	47,747	1902	51,258
1898	44,216	1903	54,256

Applications awaiting action on the part of the office.

June 30, 1894	7,076	June 30, 1899	2,989
1895	4,927	1900	3,564
1896	8,943	1901	7,683
1897	12,241	1902	11,042
1898	12,187	1903	9,842

Patents withheld and patents expired.

Letters patent withheld for nonpayment of final fees	4,760
Letters patent expired	23,390
Applications allowed, awaiting payment of final fees	10,854

Patents granted and trade-marks, labels, and prints registered.

Class.	1899.	1900.	1901.	1902.	1903.
Letters patent	21,324	24,777	24,593	26,031	29,329
Design patents	2,148	1,780	1,808	1,268	438
Reissue patent	78	83	80	88	125
Trade marks	1,406	1,660	1,826	1,864	2,194
Labels	372	682	824	750	910
Prints	76	93	124	163	233
Total	25,404	29,075	29,255	30,164	33,229

Expenditures.

	Expended.	Estimated liabilities.	Total.
Salaries	$829,012.90		$829,012.90
Scientific library	1,425.80	$574.20	2,000.00
Postage on foreign matter	2,575.00		2,575.00
Stationery	11,475.17		11,475.17
Furniture	8,065.96		8,065.96
Carpets	692.59		692.59
Ice	469.55		469.55
Telephones	1,416.01		1,416.01
Washing towels	100.39		100.39
Sundries	6,495.80		6,495.80
Law library	383.40		383.40
Official Gazette, illustrations, paid contractor	75,112.50		75,112.50
Photolithographing, paid contractor	114,294.12		114,294.12
Photographic printing, paid contractor	7,602.62		7,602.62
Printing and binding:			
Paid Public Printer for producing Official Gazette and indexes out of appropriation for 1903	94,629.45	5,174.94	99,804.39
Printing specifications	237,569.26		237,569.26
Miscellaneous printing and binding	23,806.74		23,806.74
Equipment scientific library	2,218.00		2,218.00
Total	1,417,345.26	5,749.14	1,423,094.40

Receipts and expenditures.

Receipts from all sources	$1,591,251.04
Expenditures (including total in all appropriations)	1,423,094.40
Surplus	168,156.64

Comparative statement.

June 30—	Receipts.	Expenditures.	June 30—	Receipts.	Expenditures.
1894	$1,183,523.18	$1,053,962.38	1899	$1,209,554.88	$1,148,663.48
1895	1,195,557.07	1,038,166.08	1900	1,358,228.35	1,247,827.58
1896	1,307,090.30	1,097,368.85	1901	1,408,877.67	1,288,970.13
1897	1,343,779.44	1,088,473.16	1902	1,491,538.85	1,329,924.63
1898	1,253,948.44	1,092,449.83	1903	1,591,251.04	1,423,094.40

Summarizing these tables, there were received in the last fiscal year 49,199 applications for mechanical patents, 801 applications for designs, 156 applications for reissues, 1,767 caveats, 2,530 applications for trade-marks, 1,208 applications for labels, and 362 applications for prints. There were 29,892 patents granted, including reissues and designs, and 2,194 trade-marks, 910 labels, and 233 prints were registered. The number of patents that expired was 23,390. The number of allowed applications which were by operation of law forfeited for nonpayment of the final fees was 4,760. The total receipts of the office were $1,591,251.04; the total expenditures were $1,423,094.40, and the surplus of receipts over expenditures, being the amount turned into the Treasury, was $168,156.64.

The preceding tables will sufficiently show that the business of the Patent Office is growing rapidly, and the following comparison between the receipts, expenditures, applications filed, issues of the office, the printed copies sold, copies of records furnished, and the number of employees for the years ending, respectively, June 30, 1899, and June 30, 1903, will illustrate this growth.

Class.	1899.	1903.	Increase.	Percentage of increase.
Receipts	$1,209,554.88	$1,591,251.04	$391,691.16	32.4
Expenditures	$1,148,663.48	$1,423,094.40	$274,430.92	23.9
Applications and caveats filed	41,930	56,023	14,093	33.6
Letters patent, design and reissue patents granted; and trade-marks, labels, and prints registered	25,404	33,229	7,825	30.8
Printed copies of patents furnished	1,363,971	1,914,249	550,278	40.3
Price received	$49,681.37	$64,907.01	$15,225.64	30.6
Words written in copies of records furnished	13,899,700	18,589,700	4,690,000	33.7
Number of employees	668	722	54	8

This increase in the business of the office renders necessary the establishment of a new division to do the work, and I am of the opinion that appropriation should be made for the salary of a new chief of division and assistant at the coming session of Congress.

By the appropriation bill of April 28, 1902, an increase of 35 examiners and 3 clerks was made. It now seems necessary to ask for additional clerical force, and in my opinion the services of 10 additional clerks of class 1 are required.

AMENDMENT TO REVISED STATUTES.

By act of Congress approved March 3, 1903, four sections of the Revised Statutes relating to the business of this office were amended. The changes introduced by amendment were, in effect, as follows:

Section 4887 was amended so as to give effect to the International Convention for the Protection of Industrial Property. This amendment, furthermore, extended the period within which an application for a patent could be filed in this country after an application abroad from seven months to twelve months.

Section 4892 was amended to require the authority of foreign officers administering oaths to applicants for patents to be proved by a certificate of a diplomatic or consular officer of the United States.

Section 4896 was amended so as to permit a foreign administrator of a deceased foreign inventor to file an application in this country upon the authority of such foreign administrator being proved by a certificate of a diplomatic or consular officer of the United States.

Section 4902 was so amended as to permit foreigners, as well as citizens of this country, to file caveats.

SCIENTIFIC LIBRARY.

In my report for the fiscal year ending June 30, 1902, I called attention to the necessity for an increase in the sum provided for the purchase of books for the scientific library of this office, stating that, in my opinion, $4,000 per annum could be expended judiciously for this purpose, and for the transportation of publications of patents to foreign governments. By the appropriation bill of February 25, 1903, the appropriation for this purpose was increased from $2,000 to $2,500. It seems to me not only desirable but necessary that the appropriation should be increased to the sum of $4,000 in order that this library may be kept up to the requirements of the office.

The installation of new steel stacks for this library has progressed so that it was nearly completed upon the 30th of June of this year, resulting in a great improvement in the safety and convenience of the library.

ROOM.

The steady increase in the business of the office requires more room than is available at the present time, and I am of the opinion that the quality of the work would be improved and economy accomplished in its transaction if the space allowed to the Patent Office were increased.

Respectfully submitted.

F. I. ALLEN, *Commissioner.*

The SECRETARY OF THE INTERIOR.

REPORT OF THE COMMISSIONER OF PENSIONS.

DEPARTMENT OF THE INTERIOR,
BUREAU OF PENSIONS,
August 1, 1903.

THE SECRETARY OF THE INTERIOR,
Washington, D. C.

SIR: I have the honor to submit to you the following report of the Bureau of Pensions for the fiscal year ended June 30, 1903:

SEC. 1.—PRESENT ROSTER, BUREAU OF PENSIONS.

Name.	Office.	Whence appointed.
Eugene F. Ware [a]	Commissioner	Kansas.
James L. Davenport [a]	First deputy commissioner	New Hampshire.
Leverett M. Kelley [a]	Deputy commissioner	Illinois.
William H. Bayly	Chief clerk	Pennsylvania.
Walter J. Brooks	Assistant chief clerk	Do.
Sam Houston	Medical referee	Do.
Charles F. Whitney	Assistant medical referee	Illinois.
Stephen A. Cuddy	Law clerk	Wisconsin.
Thomas W. Dalton [a]	Chief board of review	New Jersey.
Alvin L. Craig	Chief special-examination division	Pennsylvania.
Charles M. Bryant	Chief old war and navy division	Do.
Warner Wilhite [a]	Chief army division	Indiana.
Frank A. Warfield	Chief western division	Connecticut.
John S. Garrison [a]	Chief eastern division	Michigan.
John W. Watson	Chief southern division	California.
Gilbert C. Kniffin [a]	Chief record division	Kentucky.
Adolphus B. Bennett [a]	Chief certificate division	New York.
Alvah H. Thompson	Chief finance division	Kansas.
John Hancock [a]	Chief stationery division	Florida.
T. Mannell Hermann [a]	Chief mail division	Oregon.
George W. Barnes	Superintendent of building	Pennsylvania.

[a] Served in Union Army or Navy during the civil war.

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SEC. 5.—PENSIONERS—CLASSIFIED.

The number of pensioners upon the rolls July 1, 1903, and for the four preceding years, respectively, is as follows:

Wars.	1903.	1902.	1901.	1900.	1899.
War, Revolutionary:					
Widows	2	4	4	4	4
Daughters	3	4	5	7	7
War of 1812:					
Survivors	1	1	1	1	1
Widows	1,115	1,317	1,527	1,742	1,998
Indian wars:					
Survivors	1,565	903	1,086	1,370	1,656
Widows	3,169	3,320	3,479	3,739	3,899
Mexican war:					
Survivors	5,964	6,828	7,568	8,352	9,204
Widows	7,910	8,017	8,109	8,151	8,175
Service after Mar. 4, 1861:					
General laws—					
Army invalids	264,139	277,965	293,186	305,980	316,834
Army widows	86,866	87,046	86,504	88,463	90,597
Navy invalids	4,142	4,360	4,489	4,622	4,721
Navy widows	2,221	2,263	2,298	2,344	2,293
Army nurses	624	634	650	646	653
Act June 27, 1890—					
Army invalids	427,711	426,188	422,481	415,265	405,987
Army widows	155,249	148,201	138,490	129,412	124,127
Navy invalids	16,010	15,953	15,633	15,392	14,925
Navy widows	6,992	6,977	6,621	6,314	6,139
War with Spain:					
General laws—					
Army invalids	8,798	6,282	3,344	822	117
Army widows	3,488	2,727	1,981	845	165
Navy invalids	402	329	211	60	6
Navy widows	174	127	68	28	11
Total	996,545	999,446	997,735	993,529	991,519

See sections 6 and 7, also Exhibits 1, 2, 4, 10, 11, 13, and 14.

In the above table, under the head "General laws," are included 9,170 invalids and 2,938 widows whose pensions are based on service in the Regular Army and Navy, where the disability or death cause originated subsequent to the close of the civil war. Hereafter they will be classified as "Regular establishment."

SEC. 6.—PENSIONERS, BY WARS.

The following table is a condensation of the foregoing section and shows the number of pensioners according to the wars and the increase and decrease from year to year:

Wars.	1903.	1902.	1901.	1900.	1899.
War of Revolution	5	8	9	11	11
War of 1812	1,116	1,318	1,528	1,743	1,999
Indian wars	4,734	4,223	4,565	5,109	5,555
Mexican war	13,874	14,845	15,677	16,503	17,379
Civil war:					
Invalids	703,456	725,100	735,789	741,905	742,467
Widows	248,390	244,487	234,563	226,503	223,809
Spanish war:					
Invalids	9,200	6,611	3,555	882	123
Widows	3,662	2,854	2,019	873	176
Regular establishment:					
Invalids	9,170				
Widows	2,938				
Total	996,545	999,446	997,735	993,529	991,519

The change in number of each during the last five years (1899–1903) is as follows:

Wars.	Decrease.	Increase.
War of Revolution	6	
War of 1812	883	
Indian wars	821	
Mexican war	3,505	
Civil-war invalids	39,011	
Civil-war widows		24,581
Spanish war		12,563
Regular establishment		12,108
Total	44,226	49,252

Net gain since 1899, 5,026.

See sections 5, 7, and 58, and Exhibits 1, 2, 4, 10, 11, 13, and 14.

Prior to this year the cases classified as "regular establishment" were included under the head of "civil war" invalids and widows.

SEC. 7.—PENSIONERS—GAINS AND LOSSES.

There has been a gain during the fiscal year ended June 30, 1903, of the number on the pension roll as follows:

Gain by act of the Bureau	44,256
Gain by special act of Congress	231
Total	44,487

There has been lost from the rolls the following number of pensioners during the same time for causes as follows:

By death	40,907
By remarriage	1,152
By legal limitation (minors)	1,392
By failure to claim	2,791
For other causes	1,146
Total	47,388

It will be noticed that the gain from special act, as above set forth, is 231, while, as shown by section 42, the number of special acts was 1,057. The difference in the figures is owing to the fact that a large number of the special acts were increases and pertained to pensioners already on the roll.

The number of deaths among the soldier pensioners for the year was 29,123. Among these, 27,842 of the deaths were volunteers of the civil war.

The death rate among the pensioners for the coming year will be about 45,000 and the losses to the roll from other causes will be about 6,000.

The following table classifies the net gains and losses:

Class.	Number on roll July 1, 1903.	Number on roll June 30, 1902.	Gain.	Loss.
General law, Army:				
Invalids	264,159	277,985		13,826
Nurses	624	634		10
Widows, etc	86,871	87,054		183
General law, Navy:				
Invalids	4,142	4,360		218
Widows, etc	2,221	2,263		42
War with Spain, Army:				
Invalids	8,798	6,282	2,516	
Widows, etc	3,488	2,727	761	
War with Spain, Navy:				
Invalids	402	329	73	
Widows, etc	174	127	47	
Act of June 27, 1890, Army:				
Invalids	427,711	426,188	1,523	
Widows, etc	155,249	148,201	7,048	
Act of June 27, 1890, Navy:				
Invalids	16,010	15,953	57	
Widows, etc	6,992	6,977	15	
War of 1812:				
Survivors	1	1		
Widows	1,115	1,317		202
War with Mexico:				
Survivors	5,964	6,828		864
Widows	7,910	8,017		107
Indian wars:				
Survivors	1,565	903	662	
Widows	3,169	3,320		151
Total	996,545	999,446	12,702	15,603

Net loss, 2,901.
See sections 5, 6, 10, 42; also Exhibits 1, 2, 4, 10, 11, 13, and 14.

The foregoing table shows that there are 729,356 soldiers on the pension roll and 267,189 widows and dependents.

* * * * * * *

SEC. 10.—ANNUAL COST OF PENSION SYSTEM.

The cost of the pension system is composed of several items:

First. The annual value of the roll. (Sec. 10.)

Second. Total first payments, or accrued amounts paid when pension begins or certificate is issued. (Sec. 11.)

Third. Cost of maintenance of the pension system, its Bureau, and agencies. (Sec. 12.)

Fourth. Loss to the roll by dropping of payment, by death of pensioner, and the like. (Sec. 7.)

The term "annual value of roll" means the amount required annually to pay the regular pension certificates then outstanding.

Year.	Annual value of roll.	Total first payments.	Cost of maintenance.	Loss to the roll.	Paid for pensions, total.
1903	$133,029,090	$9,359,905	$3,993,216	$6,825,876	$137,759,653
1902	132,152,800	8,677,548	3,831,379	6,284,532	137,504,268
1901	131,568,216	9,934,764	3,868,795	6,270,521	138,531,484
1900	131,534,544	9,828,525	3,841,707	6,512,262	138,462,131
1899	131,617,961	9,247,958	4,147,518	5,890,949	138,355,053

See also Exhibits 3, 5, 10, and 11.

* * * * * * *

SEC. 12.—ANNUAL COST OF MAINTENANCE.

The following table shows the yearly cost of operating and maintaining the Bureau and the agencies, outside of payment of pensions proper:

	1903.	1902.	1901.	1900.	1899.
BUREAU.					
Number of employees	1,736	1,741	1,741	1,741	1,741
Salaries	$2,114,483.05	$2,114,153.75	$2,118,993.20	$2,135,542.55	$2,151,578.85
Paid surgeons	[a] 726,371.24	775,658.32	902,604.42	713,027.65	932,684.78
Other expenses	422,683.19	376,340.72	379,646.70	435,854.23	465,805.63
Total cost	3,263,537.48	3,266,152.79	3,401,244.32	3,284,424.43	3,550,069.26
AGENCIES.					
Number of employees	431	432	421	429	430
Salaries	$71,823.09	$72,000.00	$72,000.00	$72,000.00	$72,000.00
Clerk hire	417,131.32	415,164.31	412,520.21	406,712.73	404,456.98
Contingent	38,687.56	39,249.36	41,372.73	44,099.43	46,039.51
Total cost	527,641.97	526,413.67	525,892.94	522,812.16	522,496.49
Grand total—					
Employees	2,167	2,173	2,162	2,170	2,171
Cost	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[a] Incomplete; reports not all in.

Exhibits 5 and 11 show the foregoing facts more in detail.
See also sections 10 and 16.

* * * * * * *

SEC. 15.—RATES OF EXISTING PENSIONS.

The following table shows the number of pensions, and the monthly rate thereof, as condensed from exhibits 14 to 14d, herewith.

Total number of pensions June 30, 1903, was 996,545.

Rate.	Number of pensions.	Rate.	Number of pensions.
$6 and under	129,614	From $25 to $30, inclusive	14,472
From $6 to $8, inclusive	344,620	From $30 to $36, inclusive	540
From $8 to $10, inclusive	83,696	From $36 to $45, inclusive	3,536
From $10 to $12, inclusive	296,084	From $45 to $50, inclusive	3,254
From $12 to $14, inclusive	22,926	From $50 to $72, inclusive	3,787
From $14 to $15, inclusive	3,732	From $72 to $100, inclusive	77
From $15 to $16, inclusive	9,034	At $125	1
From $16 to $17, inclusive	43,784	At $166⅔	3
From $17 to $18, inclusive	736	At $208⅓	1
From $18 to $20, inclusive	7,316	At $416⅔	2
From $20 to $24, inclusive	26,216		
From $24 to $25, inclusive	3,114	Total	996,545

The average value of a pension is $133.49 (sec. 14).
Over one-half of the pensions are $10 or under.

SEC. 16.—GRAND TOTAL COST OF PENSIONS.

The disbursements for pensions by the United States from July 1, 1790, to June 30, 1865, were $96,445,444.23.

The total of pensions and expenses from the latter date to the present is, with the number of pensioners, as follows:

Year.	Paid as pensions.	Cost, maintenance, and expenses.	Total.	Number of pensioners.
1866	$15,450,549.88	$407,165.00	$15,857,714.88	126,722
1867	20,784,789.69	490,977.35	21,275,767.04	155,474
1868	23,101,509.36	553,020.34	23,654,529.70	169,643
1869	28,513,247.27	564,526.81	29,077,774.08	187,963
1870	29,351,488.78	600,997.86	29,952,486.64	198,686
1871	28,518,792.62	863,079.00	29,381,871.62	207,495
1872	29,752,746.81	951,253.00	30,703,999.81	232,189
1873	26,982,063.89	1,003,200.64	27,985,264.53	238,411
1874	30,206,778.99	966,794.13	31,173,573.12	236,241
1875	29,270,404.76	982,695.35	30,253,100.11	234,821
1876	27,936,209.53	1,015,078.81	28,951,288.34	232,137
1877	28,182,821.72	1,034,459.33	29,217,281.05	232,104
1878	26,786,009.44	1,032,500.09	27,818,509.53	223,998
1879	33,664,428.92	837,731.14	34,502,163.06	242,755
1880	56,689,229.08	935,027.28	57,624,256.36	250,802
1881	50,583,405.35	1,072,059.64	51,655,464.99	268,830
1882	54,313,172.05	1,466,236.01	55,779,408.06	285,697
1883	60,427,573.81	2,591,648.29	63,019,222.10	303,658
1884	57,912,887.47	2,835,181.00	60,747,568.47	322,756
1885	65,171,937.12	3,392,576.34	68,564,513.46	345,125
1886	64,091,142.90	3,245,016.61	67,336,159.51	365,783
1887	73,752,997.08	3,753,400.91	77,506,397.99	406,007
1888	78,950,501.67	3,515,057.27	82,465,558.94	452,557
1889	88,842,720.58	3,466,968.40	92,309,688.98	489,725
1890	106,093,850.39	3,526,382.13	109,620,232.52	537,944
1891	117,312,690.50	4,700,636.44	122,013,326.94	676,160
1892	139,394,147.11	4,898,665.80	144,292,812.91	876,068
1893	156,906,637.94	4,867,731.42	161,774,372.36	966,012
1894	139,986,726.17	3,963,976.31	143,950,702.48	969,544
1895	139,812,294.30	4,338,020.21	144,150,314.51	970,524
1896	138,220,704.46	3,991,375.61	142,212,080.07	970,678
1897	139,949,717.35	3,987,783.07	143,937,500.42	976,014
1898	144,651,879.80	4,114,091.46	148,765,971.26	993,714
1899	138,355,052.95	4,147,517.73	142,502,570.68	991,519
1900	138,462,130.65	3,841,706.74	142,303,837.39	993,529
1901	138,531,483.84	3,868,795.44	142,400,279.28	997,735
1902	137,504,267.99	3,831,378.96	141,335,646.95	999,446
1903	137,759,653.71	3,993,216.79	141,752,870.50	996,545
Total	2,942,178,145.93	95,647,934.71	3,037,826,080.64	

The difference in the cost of maintenance, as shown in sections 12 and 16, for the fiscal year ended June 30, 1903, is due to the fact that in section 12 $202,037.34, disbursed on account of fees of examining surgeons during that year, which was chargeable to the appropriations for the fiscal year ended June 30, 1902, is omitted, but is included in the cost of maintenance and expenses referred to in this section (16).

From the foregoing sections it will be seen that the pension system since the beginning of the Government has cost $3,134,271,524.87.

This is exclusive of the establishment of Soldiers' Homes.

The said sum would make in coined gold an obelisk 10 feet square and over 107 feet and 8 inches high, allowing the value of $290,977.92 per cubic foot of coinage gold.

SEC. 17.—PENSIONS OF THE SEVERAL WARS.

The following amounts have been paid to soldiers, their widows, minor children, and dependent relatives on account of military and naval service during the wars in which the United States has been engaged:

Revolutionary war (estimated)	$70,000,000.00
War of 1812 (on account of service, without regard to disability)	45,186,197.22
Indian wars (on account of service, without regard to disability)	6,234,414.55
War with Mexico (on account of service, without regard to disability)	33,483,309.91
War of the rebellion	2,878,240,400.17
War with Spain	5,479,268.31
Actual total disbursements in pensions	3,038,623,590.16

The amounts paid as pensions on account of disabilities and deaths as results of military and naval service during the wars of 1812 and with Mexico and in time of peace to the beginning of the war with Spain are included in the payments on account of the war of the rebellion.

It is estimated that $16,000,000 were paid in pensions for disabilities and deaths due to military and naval service in the wars of 1812 and with Mexico and during the time of peace prior to the war of the rebellion, making the payments of pensions to soldiers and sailors of the war of the rebellion and of the regular military and naval establishment since the close of said war of the rebellion, and their widows, children, and dependent relatives, amount to $2,862,240,400.17.

This is outside of the cost of maintaining Bureau, agencies, and Soldiers' Homes.

* * * * * * *

SEC. 21.—APPLICATIONS AND REJECTIONS.

There is no law or order fixing or limiting the number of applications that a claimant for a pension or for an increase of pension may file in the Bureau. Immediately upon the rejection of an original application or of an application for increase the claimant may file a new application.

Immediately upon the allowance of an original application or an application for increase a successful claimant may file a new application for an increase.

There is nothing improper in this, because the laws of Congress recognize progressive disabilities as arising from wounds and disease and provide for increases by reason thereof.

The limit fixed by the Department upon the hearing and determination of these applications is that the adjudications shall be six months apart; that is to say, if a pension be granted or refused, the next application can not be heard until six months afterwards.

By reason of the ravages of disease or by reason of rapid decline it not unfrequently happens that several applications are filed before the time of adjudication arrives, so that duplicate applications are quite common, and there are sometimes as many as four or five. If one application is granted the others are rejected.

In addition to this, different and separate applications are often filed by a soldier claiming under different acts of Congress or by and through several separate attorneys. The number of duplicate applications filed in 1903 was 26,069, which greatly increases the number of rejections.

For this reason it happens that the number of rejections does not represent an equal number of separate claimants. Very far from it.

Of the 113,794 cases rejected last year, 90,916 were rejected on medical grounds, and 81,107 of them were applications for increase in which the examining surgeons found no increase of disability since the last medical examination. A very small proportion of the above were original claims.

Twenty-two thousand eight hundred and seventy-eight cases were rejected on legal grounds. In these cases it was found that either there was no legal title to pension or the claimants were unable, by reason of lapse of time and other causes, to furnish the necessary evidence to establish their claims. Most of these claimants are already in receipt of pensions under the act of 1890, and were trying to obtain an increased allowance under the general law. They were afforded every opportunity to establish their right under said law, and when they had declared their inability to furnish further evidence a formal rejection of said claim was entered up in order to take the case out of the pending files.

As stated above, a very small number of these rejections pertains to claims in which no pension has been granted. Under the provisions of the act of 1890 a claimant can prosecute claims under both laws at the same time. When a claim is admitted under one law, a rejection of the other claim is usually entered up.

Thus, while the records may show a rejection, such rejection is often accompanied by an allowance of the other claim.

It is shown in the accompanying table that there were more applications filed during the past year than during any of the preceding four years.

Applications filed.

	1903.	1902.	1901.	1900.	1899.	Total.
General law:						
Invalid	1,521	1,519	2,066	2,437	3,302	10,845
Widow	6,612	6,560	7,378	7,349	8,180	36,079
Increase	57,761	42,665	41,406	37,533	31,770	211,135
Act of June, 1890:						
Invalid	9,749	8,927	13,146	10,397	10,739	52,958
Widow	18,394	17,242	18,568	15,824	16,385	86,413
Increase	79,396	61,868	72,293	50,507	34,330	298,394
War with Spain:						
Invalid	7,353	9,775	12,413	11,737	15,018	56,296
Widow	1,193	1,280	1,744	1,302	2,597	8,116
Increase	1,832	1,352	627	146	15	3,972
Regular establishment:						
Invalid	534					534
Widow	162					162
Increase	1					1
Old war and Navy:						
Invalid	4,123	1,256	1,377	1,371	1,786	9,903
Widow	2,758	1,496	1,768	1,614	1,761	9,397
Increase	5,093	5,283	4,050	2,993	2,477	19,896
Miscellaneous, including duplicates, etc.	29,520	29,413	42,343	37,795	27,427	166,498
Total	226,002	188,626	219,179	181,005	155,787	970,599

SEC. 22.—APPLICATIONS FOR INCREASE.

The applications for increase of pension filed in the Bureau from July 1, 1899, to June 30, 1903, inclusive, were as follows:

	1903.	1902.	1901.	1900.	1899.
Act of June 27, 1890	79,396	61,868	72,293	50,507	34,330
General laws	57,761	42,665	41,406	37,533	31,770
War with Spain	1,832	1,352	627	146	
Regular establishment	1				
Old War and Navy	5,093	5,283	4,050	2,988	2,477
Total	144,083	111,168	118,376	91,174	68,577

It will be noted that the applications for increase filed during the past year were largely in excess of the number filed in any year since 1898.

SEC. 23.—TOTAL ORIGINAL PENSION ISSUES.

The number of original pension issues from 1862 to 1903, inclusive, is:

Year.	Applications.	Claims allowed.	Year.	Applications.	Claims allowed.
1862	2,487	462	1884	41,785	34,192
1863	49,332	7,884	1885	40,918	35,767
1864	53,599	39,487	1886	49,895	40,857
1865	72,684	40,171	1887	72,465	55,194
1866	65,256	50,177	1888	75,726	60,252
1867	36,753	36,482	1889	81,220	51,921
1868	20,768	28,921	1890	105,044	66,637
1869	26,066	23,196	1891	096,941	156,186
1870	24,851	18,221	1892	246,638	224,047
1871	43,969	16,562	1893	119,361	121,630
1872	26,391	34,333	1894	57,141	39,085
1873	18,303	16,052	1895	45,361	39,185
1874	16,734	10,462	1896	42,244	40,374
1875	18,704	11,152	1897	50,585	50,101
1876	23,523	9,977	1898	48,732	52,648
1877	22,715	11,326	1899	53,881	37,077
1878	44,587	11,962	1900	51,964	40,645
1879	57,118	31,346	1901	58,373	44,868
1880	141,466	19,545	1902	47,965	40,173
1881	31,110	27,394	1903	52,325	40,136
1882	40,939	27,664			
1883	48,776	38,162	Total	2,924,701	1,782,213

SEC. 24.—INCREASE CERTIFICATES

As pensioners grow older their disabilities in many cases increase with age, and upon proper showings new certificates at higher rates are issued.

The following table shows the number and rate of such increase certificates for five years last past, together with number of applications:

	1903.	1902.	1901.	1900.	1899.
Number of applications	144,083	111,168	118,376	91,174	66,105
Number of increases granted	58,120	43,474	38,185	44,408	32,148
Annual value of increase	$3,076,481	$1,790,461	$1,853,676	$2,442,761	$2,006,691

* * * * * * *

SEC. 42—SPECIAL ACTS.

Congress, during the second session of the Fifty-seventh Congress, passed 1,057 special acts.

The following summary shows the number granted at the rates specified:

Rate specified.	Number granted.	Rate specified.	Number granted.
$125.00	1	$20.00	120
100.00	2	19.00	1
75.00	1	17.00	47
60.00	1	16.00	21
54.00	1	15.00	16
50.00	24	14.00	5
42.00	2	12.00	191
40.00	22	10.00	5
37.00	1	8.00	59
36.00	4	6.00	1
35.00	1	Inoperative:	
30.00	257	$30.00	1
27.00	2	24.00	2
25.00	15	12.00	3
24.00	239		
22.00	2	Total	1,057

The actual increase to the roll in number of pensioners by the above special acts was 231, the balance, 826, being already recipients of smaller pensions.

The number of special acts for the last six years is as follows, with annual value thereof and annual increase due to special acts:

	1903.	1902.	1901.	1900.	1899.	1898.
Number of special acts	1,057	1,114	707	684	300	394
Annual value	$284,364	$316,620	$196,176	$195,684	$71,952	$101,952
Annual increase due to special acts	$155,922	$182,825	$120,192	$117,759	$45,186	$67,014

When a special act passes Congress a certificate is immediately issued by the Bureau to the grantee, and the pensioner takes his place with all other pensioners upon the records of the Bureau.

It has become an established rule of Congress to grant no special-act pension to any except such as have been rejected by the Bureau or

to such as have no title to a pension under existing laws. (See Appendix A.)

There have been granted from the beginning of the civil war to date by special act of Congress 10,353 pensions, including increase of pensions.

SEC. 43.—NEW LEGISLATION.

As Exhibit 25 to this report is given the text of all legislation pertaining to this Bureau enacted by the last (Fifty-seventh) Congress. The various heads of legislation are:

1. Details of appropriations for payment of pensions. (Acts of March 10, 1902, and December 23, 1902, 32 Stat. L., 62, 761.)

2. Details of appropriations for payment of employees in the Bureau and pension agencies and examining surgeons. (Acts of March 10, April 28, and December 23, 1902, and February 25 and March 3, 1903, 32 Stat. L., 32, 159, 761, 894, 1059.)

3. Extending the provisions of the act of July 27, 1892 (27 Stat. L., 281—Indian wars, 1832 to 1842), to all Indian wars from 1817 to 1858. (Act of June 27, 1902, 32 Stat. L., 399.)

4. Relative to claims for reimbursement of expenses of last sickness and burial of deceased pensioners. (Act of June 28, 1902, and act of March 3, 1903, 32 Stat. L., 449, 1111.)

5. Joint resolution construing the act of June 27, 1890 (26 Stat. L., 182), in cases where soldiers had a prior service in the Confederate army, and in cases where no honorable discharge had been granted from a prior enlistment. (Act of July 1, 1902, 32 Stat. L., 750.)

6. Disposition of balance of pension money due a member of the National Home for Disabled Volunteer Soldiers at the time of his death. (Act of July 1, 1902, 32 Stat. L., 564.)

7. Providing for the recognition of the military service of the officers and enlisted men of the First Regiment Ohio Volunteer Light Artillery. (Act of December 19, 1902, 32 Stat. L., 757.)

8. Increasing the pension for total deafness from $30 to $40 per month. (Act of January 15, 1903, 32 Stat. L., 773.)

9. Extending the benefits of the pension laws to the officers and privates of the militia disabled by reason of wounds or disabilities received or incurred in the service of the United States. (Act of January 21, 1903, 32 Stat. L., 779.)

10. Establishing the rank and pay of the commanding officers of the Philippine constabulary. (Act of January 30, 1903, 32 Stat. L., 783.)

11. Extending the provisions of the act of March 3, 1901 (31 Stat. L., 1445), to certain remarried widows not provided for in the original act. (Act of February 28, 1903, 32 Stat. L., 920.)

12. Increasing the pensions of those who have lost limbs in the service of the United States. (Act of March 2, 1903, 32 Stat. L., 944.)

13. Increasing the pension of Mexican war survivors to $12 per month. (Act of March 3, 1903, 32 Stat. L., 1228.)

* * * * * * *

SEC. 50.—PENDING FILES—SUMMARY.

Those cases which are undergoing examination in the Bureau and are in the process of adjudication are called the "pending files."

The following table shows their general classification as it stood July 1, 1903:

First. Under acts of July 14, 1862, and March 3, 1873 (general laws):			
Original invalid	7,399		
Reissue invalid	20,706		
Increase invalid	52,797		
		80,902	
Original widows	11,123		
Reissue widows	4,666		
Increase widows	2,250		
		18,039	
Original minors	4,130		
Reissue minors	147		
Increase minors	145		
		4,422	
Original dependents		982	
			104,345
Second. Under act of June 27, 1890:			
Original invalid	23,966		
Additional invalid	13,070		
Increase invalid	62,480		
		99,516	
Original widows		27,618	
Original minors		3,315	
			130,449
Third. War with Spain:			
Original invalid	33,058		
Reissue invalid	3		
Increase invalid	1,590		
		34,651	
Original widows	512		
Reissue widows	2		
Increase widows	1		
		515	
Original minors		128	
Original dependents		1,833	
			37,127
Fourth. Regular establishment:			
Original invalid	2,676		
Reissue invalid	45		
Increase invalid	860		
		3,581	
Original widows	408		
Increase widows	7		
		415	
Original minors		49	
Original dependents		194	
			4,239
Fifth. Army nurses			79
Service prior to March 4, 1861			5,900
Accrued			22,670
Total			[a] 304,809

[a] Act of March 3, 1899 (deserted wives), not included—346 claims.

The foregoing pending cases are located in the divisions as follows:

Army	49,644
Eastern	82,641
Old war and navy	15,727
Southern	50,564
Western	106,233
Total	304,809

SEC. 51.—ORIGINALS—PENDING FILES AND CERTIFICATES.

The following table shows the number of "original" claims pending July 1, 1903, on which no allowance has ever been made, but which are now in process of adjudication:

In many cases two or more claims are made by the same claimant under different laws, so that the actual number of claimants is considerably less than the number of claims noted in this table.

Old wars:		
Invalid	89	
Widows	54	
		143
War of 1812: Widows		5
Indian wars:		
Survivors	1,381	
Widows	1,127	
		2,508
War with Mexico:		
Survivors	85	
Widows	581	
		666
Civil war:		
Invalid—general law	7,399	
Invalid—act of 1890	23,966	
		31,365
Widows—general law	11,123	
Widows—act of 1890	27,618	
		38,741
Minors—general law	4,130	
Minors—act of 1890	3,315	
		7,445
Dependents—general law		982
Army nurses		79
War with Spain:		
Invalid	33,058	
Widows	512	
Minors	128	
Dependents	1,833	
		35,531
Regular establishment:		
Invalid	2,676	
Widows	408	
Minors	49	
Dependents	194	
		3,327
Total		120,729

From the foregoing it will be seen that only 7,399 old soldiers of the civil war are awaiting attention on original (first) invalid claims under the general law.

The number of original pensions granted during the past five years is as follows:

	1903.	1902.	1901.	1900.	1899.	Total.
Soldiers	19,615	18,735	22,814	23,889	20,680	105,734
Widows and dependents	20,521	21,438	21,411	16,756	16,397	96,523
Total	40,136	40,173	44,225	40,645	37,077	202,257

SEC. 52.—PENDING FILES—CLASSIFICATION.

The following table shows the classification of all claims in the Bureau pending adjudication. This table comprises the cases found in sections 50 and 51.

A comparison is also made with the years 1901 and 1902:

Class of claims.	Pending claims.		
	Balance on hand July 1, 1903.	On hand July 1, 1902.	On hand July 1, 1901.
Service prior to March 4, 1861.			
Old wars:			
Original invalid	89	105	132
Original widow	54	48	47
Total	143	153	179
War of 1812:			
Survivor			
Widow	5	9	12
Total	5	9	12
Indian wars:			
Survivor	1,381	20	20
Widow	1,127	332	351
Total	2,508	352	371
Mexican war:			
Survivor	85	79	72
Widow	581	682	806
Total	666	761	878
Restoration and increase	317	260	200
Mexican increase (acts Jan. 5, 1893, and Apr. 23, 1900)	1,175	652	310
Total	1,492	912	510
Bounty land	172	155	140
Service since March 4, 1861.			
Army nurses	79	69	78
General law:			
Original invalid	7,399	14,548	16,871
Original widow	16,235	19,638	22,516
Total	23,634	34,186	39,387
Act June 27, 1890:			
Original invalid	23,966	29,967	38,060
Original widow	30,933	33,260	37,412
Total	54,899	63,227	75,472
Increase:			
Invalid (general law)	52,797	58,315	70,163
Invalid (act June 27, 1890)	62,480	63,578	81,472
Invalid reissue	20,706	33,067	41,399
Invalid additional	13,070	15,874	22,722
Widow's increase	2,395	2,998	3,214
Widow's reissue	4,813	8,535	8,937
Total	156,261	182,367	227,907

Class of claims.	Pending claims.		
	Balance on hand July 1, 1903.	On hand July 1, 1902.	On hand July 1, 1901.
Service since March 4, 1861—Continued.			
War with Spain:			
Invalid	33,058	30,159	30,031
Invalid increase	1,593	1,490	627
Widow	2,473	2,784	2,874
Widow increase	3		
Total	37,127	34,433	33,532
Regular establishment:			
Invalid	2,676		
Invalid increase	905		
Widow	651		
Widow increase	7		
Total	4,239		
Accrued	23,584	22,812	25,103
Grand total	[a] 304,809	[b] 339,436	[c] 403,569

[a] Act of March 3, 1899 (deserted wives), 346 claims on hand July 1, 1903, not included.
[b] Act of March 3, 1899 (deserted wives), 433 claims on hand July 1, 1902, not included.
[c] Act of March 3, 1899 (deserted wives), 1,404 claims on hand July 1, 1901, not included.

The designation "widows" includes minors and dependent relatives.
The term "increase" includes claims for restoration and new disabilities.
"Reissue" means general-law claim pending; pensioned under act June 27, 1890.
"Additional" means act June 27, 1890, claim pending; pensioned under general law.

RECAPITULATION.

Number of soldiers:	
Rebellion service	212,716
War with Spain	36,726
Regular establishment	4,142
Total	253,584
Number of claimants:	
Rebellion service	214,140
War with Spain	36,759
Regular establishment	4,149
Total	255,048
Number of pending claims:	
Service prior to 1861	5,900
Rebellion service	257,332
War with Spain	37,195
Regular establishment	4,382
Total	304,809

SEC. 53.—THE WAR WITH SPAIN.

The following shows the condition of the Bureau with reference to the war with Spain:

	1903.	1902.	1901.	1900.	1899.	Total.
Original invalid applications	11,970	10,210	12,814	12,038	15,009	62,041
Other applications	4,242	2,783	2,639	1,580	2,593	13,837
Applications admitted	5,266	4,530	4,212	1,511	303	15,822
Applications rejected	5,523	7,977	6,365	920	41	20,826
Applications consolidated, etc						2,035
Applications on hand	37,195	34,456	33,541	28,545	17,335	

The expenditures by way of total annual payments are as follows:

1899	$28,606.81
1900	332,905.25
1901	1,175,225.76
1902	1,738,446.28
1903	2,204,084.21
Total	5,479,268.31

The number of Spanish war pensioners on the roll is shown by section 5 to be (all classes) 12,862.

The annual value of the Spanish war pension roll is $1,765,310.

For further information see sections 6, 7, 14, 17, 22, 50, 51, 52, and 53, and Exhibits 1, 2, 3, 7, 10, 12, 14b, and 16.

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SEC. 56.—THE UNKNOWN ARMY.

The question is being constantly asked how many survivors of the civil war are living and unpensioned, exclusive of deserters.

The War Department, through Gen. F. C. Ainsworth, Chief of the Record and Pension Office, made a careful calculation, and published the result April 14, 1896. He also made an estimate, based upon approved life tables, of the number of survivors on June 30 of each following year. The number so fixed for June 30, 1903, was 894,585. It will be seen that in round numbers this is 900,000. My observation goes to show that this is about the right number, but if anything different the estimate is a trifle too low rather than too high.

In the Pension Bureau, among the large number of soldiers employed, it is found that those who do not draw pensions are 25 per cent of those who do.

If with all the facilities for getting pensions in the Pension Bureau this 25 per cent remain without pensions, it is easy to see that in the country at large the average must be at least 30 per cent. This would make the unknown army fully 200,000, if not a little more.

Again, the reason that pensions are not drawn is that many who are comfortably situated financially, or are living pleasant lives, or have gainful occupations do not care to apply for pensions. There is also the sentimental side; many are proud, many scorn relief, many do not believe in the pension system as it now exists.

The unknown army represents those who came out of the army strong, vigorous, seasoned, and uninjured, and have not met with disease or misfortune to such an extent as to induce them to apply for pensions. They are also perhaps the youngest, and of them perhaps 5,000 served less than ninety days and received no disability and have no claims to pension.

This unknown army is, however, meeting with disease and misfortune to such an extent that it is applying for pensions at the rate of over 14,000 per annum (1902, 14,135; 1903, 14,340), which would indicate that the unknown army was fully 200,000. It may be as high as 225,000.

Another way of estimating this unknown army is to notice the number of widows' applications in excess of the deaths of married pensioners during the last two years. This is somewhat of a complicated

problem, but it indicates that the unknown army may be as large as 210,000, of whom 74.27 per cent have wives living.

The death rate of the unknown army will be 4 per cent during the coming year, and it will lose in deaths and pensions about 22,000. If the pension laws remain unchanged, this unknown army in five more years will be reduced to about 60,000, and in ten years will cease to be a factor.

* * * * * * *

SEC. 58.—SOLDIERS OF THE VARIOUS WARS.

In connection with the matter of pensions is the question as to how many soldiers and sailors were, in the several wars, engaged in the military service of the United States.

Enormous as has been the expenditure of pensions, taken in the aggregate, from the foundation of the Government (section 16), the number of men who have been engaged in upholding the flag of the United States has also been enormous.

Amount paid	$3,038,623,590.16
Number in service	3,304,993
Average pension to each enlistment	$919.00

Appended hereto, as Exhibit 23, is a table showing all the details. This table is an exceedingly valuable one, and has been compiled by Newton A. Strait, of Pennsylvania, who is one of the most painstaking and accurate of the statisticians in the Government service. From this table the following condensation is made:

Number of soldiers and sailors.

Revolutionary war	184,038
War of 1812	286,730
Mexican war	78,718
Indian wars	83,993
Civil war	2,213,363
Spanish war	312,000
Philippines and China	146,151
Total	3,304,993

The foregoing does not include a great number of civilians who, in brief and temporary local organizations, fought the savages through a period of one hundred and twenty-five years without making any claims for services.

SEC. 59.—EXHIBITS AND APPENDIXES.

There are hereto attached 26 exhibits, showing in detail, for the benefit of those who may wish to examine them, the operations of the Bureau for the past year. To the foregoing are attached—

Appendix A: The rules of Congress as applicable to the passage of special acts, being the rules adopted by the Senate and the rules adopted by the House.

Appendix B: An epitome of the present laws regarding pensions, being a concise summary for the benefit of those who may desire to apply.

Appendix C: A parallel reference to the provisions of the "old law" and the "new law," both of which are now operative. This appendix is for the purpose of preventing mistakes by applicants.

SEC. 60.—RECOMMENDATIONS.

I recommend the appropriation of $300 for medical books in the Bureau and $250 for law books.

I recommend the passage of a law that any man that is convicted in a court of an infamous crime should forfeit his pension or his right to one.

I recommend the passage of a law prohibiting the giving of pensions to those women who marry soldiers after the soldiers become old pensioners.

I recommend the passage of a law providing for superannuated clerks, and invite attention to section 55, showing the condition in this Bureau, where there are 500 employees who are 60 years old or over, in a force of 1,714, and where the average of all is 53 years. Some law of retirement and provision must be devised, as the present system is too unsatisfactory and too expensive.

I recommend that in the act of March 3, 1899, the word "resident" be stricken out at the beginning of the first proviso, because, as the proviso now stands (Pension Laws, p. 121), a United States pensioner living abroad has a great advantage over a resident pensioner.

As the number of employees in the Pension Bureau and its branch agencies exceeds over 2,000 in number, and the work and responsibilities are great, I recommend that the salary of the chief clerk be fixed at $2,500 per annum.

As the chief of the special examination division is charged with the handling of a large number of cases at headquarters and also many thousands in the field, and has charge of the field force operating in all of the States and Territories of the Union, taking over 130,000 depositions per year and accounting for the expense thereof at the rate of from $350,000 to $400,000 per annum, I recommend that his salary be fixed at not less than $2,250 per year.

As attorneys are not permitted to charge claimants for services under the following acts, and as claimants ought to have the right to the services at reasonable fees, as well for their own benefit as the saving of expense to the Government in doing the work which the attorney might otherwise do, I recommend the fixation by law of a small fee for services of attorneys under each of the acts:

1. *Act of March 3, 1901, amending section 4708, Revised Statutes*, in relation to pensions to remarried widows.

2. *Act of February 28, 1903, amending the act of March 3, 1901* (Public—No. 124).

3. *Section 4711, Revised Statutes, and the act of January 25, 1879*, granting arrears of pension.

4. *Act of March 19, 1886*, granting increase to widows and dependent relatives.

5. *Act of August 5, 1892*, granting pension to army nurses.

I recommend a different method of examining applicants for pension. The present system is a most uncertain, expensive, and unsatisfactory method. The system is liable to outside control and political dictation, and generates an enormous amount of political friction.

Those who are examined for disabilities desire to have the very best medical knowledge which is attainable. The pathological sequences of many diseases and disabilities are so obscure and remote that they can

only be detected by careful examination conducted by those of learning and experience. The Government needs protection as well.

I suggest boards constituted of experts under civil-service rules who should go from place to place on fixed days, giving examinations and receiving testimony regarding the conditions of the applicants and making reports thereon. The territory could be divided into circuits and the board serve outside of the States of their domicile.

I append hereto Exhibit 25, the projet of a proposed bill to meet the difficulty.

SEC. 61.—CONCLUSION.

It will be observed from reading the preceding sections that during the last year the Pension Bureau with less clerks has accomplished more work than that done in any of the last ten years.

It will be observed that the number of applicants and demands upon the Bureau were 25 per cent larger last year than the annual average of the past ten years, and that the Bureau has gained upon the current work 100,000 cases in two years.

Two hundred and fifty promotions have been made in the Bureau during the last year on merit, and it is believed that the esprit de corps of the Bureau was never higher.

I am under great and special obligations for the efficient services of Hon. James L. Davenport, First Deputy.

I am also indebted to Hon. L. M. Kelley, Second Deputy, and to W. H. Bayly, chief clerk.

I desire to thank Thomas D. Yeager, of Pennsylvania, William L. Marsh, of Tennessee, Calvin Neilson, of Pennsylvania, and Joseph M. McCoy, of West Virginia, for their personal services in assisting in the execution of the duties of the Commissioner at headquarters. The foregoing are all men of the highest order of ability, honor and industry, and their services to the Government have been exceedingly valuable.

To the foregoing is to be added the name of L. Seward Terry, of New York, private secretary.

All of which is respectfully submitted.

E. F. WARE, *Commissioner.*

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REPORT OF THE COMMISSIONER OF RAILROADS.

DEPARTMENT OF THE INTERIOR,
OFFICE OF COMMISSIONER OF RAILROADS,
Washington, November 1, 1903.

SIR: In compliance with the provisions of the act of Congress creating this Bureau, approved June 19, 1878 (20 Stat. L., 169), I have the honor to submit the following report of the physical and financial condition of the several railroad companies coming within the jurisdiction of the Bureau which have received subsidies in bonds or lands, or both, and which have submitted such reports as have been called for under the law.

Of the bonded companies all have settled their indebtedness to the Government in some manner, with the exception of the Central Branch. The condition of that company remains practically unchanged since the date of my last report. The Union Pacific settled its debt in full. The Central Pacific funded its debt into 20 promissory notes, payable each six months for ten years from February 1, 1899. The claims of the United States against the Sioux City and Pacific were purchased by the Chicago and Northwestern Railway Company, which later purchased the road and all the interests of the company, so that the operations of this road are embodied in the report of the Chicago and Northwestern. Of the remaining 19 companies which were subsidized with lands only several have declined to report specially to the Bureau, holding that their geographic positions do not come within the provisions of the law, but all have sent such reports as were made to their stockholders.

Following are tables, the first showing the steady increase in net earnings of railroads for the last four years, the second the increase in gross earnings and expenses for the year ended June 30, 1903. The ratio of expenses to earnings has greatly increased in the past year, owing to a variety of causes, such as the unprecedented bad weather of the spring, causing washouts and expensive delays, scarcity of labor, and increased cost of fuel, etc., which has correspondingly decreased the net earnings. Consequently, while there has been an increase of net earnings in the aggregate, that increase is much less than for the preceding year.

Increase of net earnings.

Company.	1900.	1901.	1902.	1903.
Union Pacific	$1,325,211.27	$525,532.13	$2,542,989.06	a$2,106,427.61
Central Pacific	1,023,726.90	215,395.70	80,651.73	694,105.32
Central Branch	184,521.49	a 51,407.30	a 28,610.34	79,343.96
Atchison, Topeka and Santa Fe	3,282,360.29	2,319,134.49	1,887,139.26	a 1,203,124.48
Atchison, Topeka and Santa Fe Coast Lines	1,822,449.70	a 14,908.92	501,880.97	1,249,060.04
Chicago, Burlington and Quincy	940,138.18	2,905,669.66	2,058,587.57	3,772,907.53
Chicago, Milwaukee and St. Paul	a 883,940.68	927,654.34	1,024,720.47	648,333.54
Chicago and Northwestern	2,267,388.03	137,010.61	659,163.25	120,070.33
Chicago, Rock Island and Pacific	676,349.80	531,448.35	1,931,518.24	.....
Chicago, St. Paul, Minneapolis and Omaha	a 178,931.35	207,818.57	466,979.03	a 215,151.17
Choctaw, Oklahoma and Gulf	785,187.28	885,075.54	122,880.15	51,977.94
Dubuque and Sioux City	a 254,440.64	a 36,336.20	a 13,177.09	a 216,783.93
Missouri, Kansas and Texas	a 35,292.50	426,688.02	265,124.09	240,868.40
Missouri Pacific	578,793.85	846,167.49	a 357,201.23	1,165,787.76
Northern Pacific	1,827,011.14	224,388.69	3,948,587.50	1,739,502.84
Oregon and California	a 97,703.72	104,655.44	236,127.02	101,482.84
St. Joseph and Grand Island	a 23,123.06	180,526.31	a 8,406.52	a 90,394.88
St. Louis, Iron Mountain and Southern	1,297,379.62	1,193,912.46	a 40,377.72	240,864.23
St. Louis and San Francisco	386,165.81	939,832.21	2,913,471.37	265,820.50
Southern Pacific	1,415,603.74	588,850.91	4,463,741.77	a 139,845.69
Texas and Pacific	a 60,747.71	1,597,745.47	a 840,746.06	210,869.29
Wisconsin Central	a 4,048.89	a 198,669.26	300,285.37	287,772.70

a Decrease.

The following table shows the increase in gross earnings and expenses for the year 1903 over those for 1902. There has been an addition of about 2,600 miles in the length of these lines, and many permanent improvements and betterments have been made to the roads as well as to the equipment and buildings.

Increase in earnings and expenses.

Company.	Earnings.	Expenses.
Union Pacific	$1,466,587.32	$3,573,014.93
Central Pacific	930,559.79	286,454.47
Central Branch	34,397.13	a 44,946.83
Atchison, Topeka and Santa Fe	1,018,020.48	2,221,144.96
Atchison, Topeka and Santa Fe Coast Lines	3,442,224.41	2,193,164.37
Chicago, Burlington and Quincy	6,376,678.27	4,603,770.74
Chicago, Milwaukee and St. Paul	2,049,612.73	1,401,279.19
Chicago and Northwestern	3,499,109.35	3,379,039.02
Chicago, St. Paul, Minneapolis and Omaha	322,209.37	537,360.49
Choctaw, Oklahoma and Gulf	929,372.42	877,394.48
Dubuque and Sioux City	a 200,731.41	16,052.52
Missouri, Kansas and Texas	816,792.85	575,824.45
Missouri Pacific	1,801,143.22	635,356.46
Northern Pacific	4,754,725.19	3,015,222.35
Oregon and California	486,435.74	384,952.90
St. Joseph and Grand Island	88,372.17	128,767.05
St. Louis, Iron Mountain and Southern	1,344,519.60	1,103,655.37
St. Louis and San Francisco	1,984,053.99	1,718,233.49
Southern Pacific	2,168,666.06	2,308,511.75
Texas and Pacific	162,903.74	a 47,965.55
Wisconsin Central	610,392.58	322,619.88

a Decrease.

* * * * * * *

I have the honor to be, very respectfully, your obedient servant,

JAMES LONGSTREET,
Commissioner.

Hon. E. A. HITCHCOCK,
Secretary of the Interior.

REPORT OF THE DIRECTOR OF THE CENSUS.

UNITED STATES CENSUS OFFICE,
Washington, D. C., July 15, 1903.

SIR: I have the honor to submit the following report upon the operations of the Census Office for the fiscal year ended June 30, 1903, on which date the relations of the Census Office to the Department of the Interior came to an end by transfer to the jurisdiction of the Department of Commerce and Labor, under the provisions of the act of Congress approved February 14, 1903.

I took the oath of office as the successor of Director William R. Merriam, resigned, on the 8th of June last, so that I have been in charge of the Census Office but twenty-three days of the fiscal year to which this report relates.

I found the work of the office progressing efficiently and satisfactorily, under the provisions of the act for the establishment of the permanent Census Office, approved March 6, 1902. The first complete year of operation under the law is covered by this report.

COMMERCIAL AND FIELD FORCE.

June 30, 1903, the last day of your jurisdiction, the employees of the Census Office numbered 747, classified as follows:

Chief clerk, Edward McCauley.
Chief statistician for population, William C. Hunt.
Chief statistician for manufactures, William M. Steuart.
Chief statistician for agriculture, Le Grand Powers.
Chief statistician for vital statistics, William A. King.
Disbursing clerk, John W. Langley.

Expert chiefs of division	4	Skilled laborers	11
Clerks, class 3	6	Watchmen	10
Stenographer	1	Messengers	5
Clerks, class 2	10	Assistant messengers	12
Clerks, class 1	296	Unskilled laborers	15
Clerks, $1,000	263	Charwomen	36
Clerks, $900	72		

There were also upon the rolls of the Census Office 689 special agents, most of whom were employed temporarily in the South for the purpose of collecting statistics of cotton production.

DISBURSEMENTS.

The total amount of disbursements for the permanent Census Office during this year was $1,282,996.28, as shown by the report of the disbursing officer of the Census Office, which is attached as an appendix to this report. To this sum should be added the accounts chargeable against the fiscal year ending June 30, 1903, which have been presented for payment, amounting to $60,485.65, making, since July 1, 1903, the total cost for that year $1,343,481.93. It is estimated that the cost of printing ordered during the same year, but according to information obtained from the Government Printing Office, not begun until after the end of the year, and therefore chargeable to the appropriation for the fiscal year ending June 30, 1904, will be about $70,000. The total cost of the Census Office from its organization under the act of March 3, 1899, to the close of the last fiscal year was $13,115,439.27. The cost of carrying on the work of the office for the fiscal year covered by this report was $402,268.29 less than the appropriations available for that purpose. Under the provisions of the act to supply deficiencies in the appropriations for the fiscal year ending June 30, 1903, approved March 3, 1903, as construed and interpreted by the Attorney-General of the United States, at your request, the whole of this unexpended balance is available for general census purposes during the fiscal year ending June 30, 1904. Adding this unexpended balance to the regular appropriation voted by Congress for the conduct of the Census Office for the current fiscal year, $1,183,260 (which includes the allotment of $250,000 in the appropriation for public printing and binding for that year), we have the total sum available for that purpose of $1,585,528.29 or $242,046.36 in excess of the total expenditures for the fiscal year ending June 30, 1903.

SUPPLEMENTAL REPORTS.

The act of Congress under which the Twelfth Census was taken required that the reports relating to the four main subjects of census inquiry—population, agriculture, manufactures, and vital statistics—should be completed and published on or before July 1, 1902; and my predecessor, in his last annual report to you, was able to make the gratifying announcement that this provision of the law had been substantially complied with. The schedules of the Twelfth Census, however, contain a great deal of valuable, and interesting data collected in accordance with the law, the complete compilation and publication of which was physically impossible within the time limit above referred to. The information comprised in these data is desired by the public, and its publication is essential to a perfect census; the Director accordingly ordered its compilation. Work upon these supplemental reports of the Twelfth Census has been continued throughout the fiscal year,

chiefly in the division of population, under Mr. William C. Hunt, chief statistician.

One of the most important lines of supplemental investigation in this division has been the preparation of a report on occupations (containing statistics in the main resembling those presented for the Eleventh Census), which is now nearing completion and will be published during the present year.

The statistics of occupations appearing in the main report on population were limited to tables presenting details for the United States and for each state and territory, and condensed facts for principal cities, concerning the number of males and females 10 years of age and over engaged in each specified occupation and in each of the five main groups of occupations. In the supplemental report about to be published will appear the detailed classification of persons engaged in gainful occupations in 1900, according to general nativity, color, age, conjugal condition, parentage, and months unemployed. The general tables of this report are now in type and occupy 763 pages.

The greater portion of this space is devoted to two tables, Nos. 41 and 43, the former relating to states and territories and the latter to cities having a population of 50,000 and upward. These tables together occupy 488 pages. They present in detail figures for each sex separately, and the number of workers in the principal occupation groups, classified successively by general nativity, color, age, conjugal condition, parentage, and period of nonemployment.

The division has also been engaged in the further verification and tabulation of the statistics derived from the answers to the two inquiries on the population schedule relative to the number of children born and the number living at the time of taking the census in June, 1900. Similar information was collected at the census of 1890, but it was not tabulated on account of the temporary organization of the office, which practically went out of existence early in 1895, following the publication of the general results of the Eleventh Census.

This work relative to children born and living at the Twelfth Census, in accordance with the plan now being followed, contemplates the limitation of the tabulations, first, to married women both of whose parents were born in the same country and whose husbands were living with them at the time the census was taken, because the census does not enumerate persons where they are "present" but at their usual place of abode, so that husband and wife were enumerated as a part of the same census family; second, to a subdivision of this class of women according to (*a*) color (white or black), (*b*) general nativity (native or foreign born), (*c*) parentage (both parents born in the United States or in 1 of 19 foreign countries), (*d*) nativity and parentage of husband (same nativity and parentage as wife), (*e*) age of wife (quinquennial period), and (*f*) duration of marriage (number of years married to present husband); and third, to a tabulation for each of these groups according to the number of children born and living.

The sorting of the cards in numerical order by enumeration districts, preparatory to the work of transcription (by punching) already outlined, involves the successive handling of about 13,000,000 cards according to each of the gang-punch "fields" and by card numbers, and of this work very nearly four-fifths has been completed.

A considerable force of the division of population was employed, particularly in the earlier months of the fiscal year, in a general revision of the posting sheets from which were derived the tabular

presentation included in the Report on Population, in order not only to condense matter that must be retained as a part of the permanent records, but also to make it permissible to destroy a large number of result slips which otherwise would have to be stored and cared for.

STREET AND ELECTRIC RAILWAYS.

The division of manufactures, of which Mr. William M. Steuart became chief statistician on my resignation of that office on the 1st of March last, has been chiefly engaged during the year in the preparation of certain of the special reports authorized by section 7 of the act for the establishment of the permanent Census Office. A preliminary bulletin on Street and Electric Railways has already been issued, to be followed in the fall by a complete report. This report covers the fiscal year ended June 30, 1902. There were then 817 operating street and electric railways in existence and also 170 lessor companies, making a total of 987 companies from which schedules were received. These statistics present in detail the description of the physical equipment of each railway; also the capital stock, funded debt, cost of operation, maintenance, income, etc.

MINES AND QUARRIES.

The division has been engaged since February in the field work of the census of mines and quarries. This census has been conducted in cooperation with the United States Geological Survey, which collects and publishes annually the statistics of the production of the different minerals. The special agents of the Survey and Census Office have been working together in the collection of these statistics, and the field work is now practically completed. Returns have been received from 22,061 mines and quarries, of which 15,624 are for mines and quarries in active operation during 1902. The examination and correction of the schedules have been carried on simultaneously with their collection. The tabulation of the mining and quarrying statistics will shortly be under way, and the report should be published before the close of the present calendar year.

ELECTRIC LIGHT AND POWER PLANTS.

Simultaneously with this work the field work for the special Report on Electric Light and Power Plants has been completed. Returns were secured from 3,741 plants of this character, which present, in detail, statistics similar to those for street and electric railways. The returns have all been tabulated, and the report will soon be ready for publication in bulletin form. A related inquiry is that concerning police patrol and fire alarm telegraphs, reports from 700 cities in which these systems prevail having been received and prepared for tabulation. The related report upon telephone and telegraph companies is also under way. These several inquiries will occupy the division of manufactures during the greater part of the coming fiscal year; and another inquiry—that on transportation by water—has been assigned to this division, and will be undertaken as soon as practicable.

EMPLOYEES AND WAGES.

The division has also completed, during the year, a special Report on Employees and Wages in manufacturing establishments, under the supervision of Dr. Davis R. Dewey, expert special agent, of the Mas-

sachusetts Institute of Technology, Boston, Mass. This special report was ordered by my predecessor, upon my recommendation, after the fact had developed that the statistics of manufactures for the Twelfth Census, as taken upon the schedule prepared for that census, and by the methods which must govern a general census, afforded no trustworthy indication of the actual trend of wages in manufacturing between census years 1890 and 1900. It was believed that the public expected from the census definite and trustworthy information on this subject, and it was found that it was possible to furnish such information only by the use of a special schedule, and by its application to typical establishments in the several branches of industry located in the different sections of the country.

The report contains statistics of the number of employees receiving specified daily, hourly, and weekly rates of pay. The tables are comparative, and are based upon actual transcripts from the pay rolls of representative establishments for the years 1890 and 1900. The statistics are classified according to occupations and localities, the comparisons being made for the purpose of showing the increase or decrease in the number employed at specified rates of pay for the same occupation in different localities. Large tables, occupying about 1,100 pages are now in type and the analysis is in manuscript. The report will be printed and ready for distribution early in the month of October, 1903.

The treatment of these comparative pay rolls by Dr. Dewey is novel in character, and it is believed that the results will be found much more satisfactory and conclusive than any which have ever before been obtained by a census of manufactures. The material has been collected in such form that it will be possible to continue the investigation along the identical lines in 1905 and at subsequent censuses, in such a manner as will make the report a scientific barometer of the rise and fall of wages in the principal manufacturing industries from decade to decade.

COTTON PRODUCTION.

Another branch of work intrusted to this division has been the collection of the statistics of the quantity of cotton ginned in the United States from the crop of 1902, in accordance with the provisions of section 9 of the act establishing the permanent Census Office. Compliance with this provision of law has required the employment of 626 local special agents, located in as many counties throughout the cotton-growing states, and also a considerable office force. Three bulletins were issued during the cotton-ginning season. The first covered the cotton ginned up to October 18, the second to December 13, and the third the quantity ginned from the entire growth of 1902. In addition to the collection of the statistics the field and office force perfected the official list of ginneries, which now contains the names of 32,753 gins, of which 30,948 were active during the season of 1902. The collection of these statistics required that three reports should be obtained from each of these gins, making a total of 92,844 reports, which were obtained by a personal visit to each gin. The rapidity with which this vast number of reports was secured, transmitted to the Census Office, tabulated, added, and the results made public, is an indication of the perfection of the machinery for the collection of statistics of this character.

The cost of the field service required in this inquiry for the season

of 1902 was $58,080. For the crop season of 1903 five reports are contemplated, and the cost of the service will this year be increased accordingly, and will reach approximately $97,500. In view of the enormous importance of the cotton crop, and the advantage to planters and consumers which comes from early and accurate information as to the size of the crop, it is believed that this annual expenditure on the part of the Government is warranted. The Census Office was enabled, by its perfected machinery, to give the public an accurate and final statement of the size of the crop of 1902 as early as April 1 of the present year, which was five months earlier than this important information has ever before been available from any commercial source. Its important bearing upon the cotton market, in a season of such unusual activity as that through which we have passed this year, is apparent.

WEALTH, DEBT, AND TAXATION.

The agricultural division of the office, under the direction of Mr. Le Grand Powers, chief statistician, has been chiefly engaged, since the completion of the report on agriculture, in the general investigation relating to wealth, debt, and taxation, authorized by section 7 of the census act. The plans of the division contemplate the completion of this great and important statistical work in about three years' time. During the past year the general scheme for the work has been planned, the schedules have been prepared, and a substantial beginning has been made in the collection of the statistics. Since April 1 a field force of about 50 clerks and special agents has been at work collecting the statistics of public receipts, expenditures, assessments, and taxation. This force has been increased since July 1 to about 80 agents, and it is expected that the greater portion of the field work will be completed during the month of November next. The results will be tabulated and presented from time to time in the two years following.

The division has also employed about 20 clerks in carrying out the provisions of joint resolution (H. R. Res. 182) passed at the first session of the Fifty-seventh Congress. This resolution authorized the Director of the Census

to complete and bring up to date of the crop year of 1902 the statistics relating to irrigation, the area of land reclaimed, the cost and value of the work, and such other information as can be obtained bearing upon the present condition of irrigation.

The report on irrigation is nearly completed and the results will be embodied in a special bulletin to be issued in October.

An important feature of the work of this division has been a special investigation ordered by Director Merriam reviewing carefully the results of the census of agriculture, with several objects in view. The investigation sought to ascertain if methods can not be devised for shortening the time required for tabulating and presenting the results of the agricultural census. It also sought to reach definite conclusions as to the margin of error under existing methods in the agricultural statistics of the census. It is expected that the results of this special investigation will be embodied in a bulletin to be issued during the current year.

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Respectfully submitted.

S. N. D. North, *Director.*

The Secretary of the Interior.

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REPORT

OF THE

SECRETARY OF AGRICULTURE.

To the President:

I have the honor to submit herewith my Seventh Annual Report as Secretary of Agriculture.

EDUCATIONAL REQUIREMENTS OF AGRICULTURAL RESEARCH.

The research work of the Department of Agriculture, covering the sciences of production in the fields and other laboratories where the crops of the country are grown and where they are made more valuable by skill, has required a class of experts not educated by the institutions of learning, where our people have heretofore been prepared for their life work. The development of the Department toward doing all that should be done to help our people secure a greater yield from the soil, and enhance the value of its products, made the training of experts in the Department a necessity.

The country needed scholars along all the lines of work considered in this report. The agricultural colleges of the States are the natural sources from which students for this work should be expected to come, and we have availed ourselves of all the competent graduates of these institutions that could be induced to take up advanced work with us; but the demand has been so great, and the growth of the Department so rapid, that we have been compelled to seek the most competent men wherever we could find them.

The theory of our duty is to help any locality that is struggling with a problem to an early solution of which the experience of our scientists may contribute or where the undertaking is beyond the means at the disposal of the people interested.

To these ends many specialists must be trained, and for these purposes the Department has become a post-graduate institution where groups of sciences are taught and applied. Comparatively little time is devoted to the ascertainment of abstract scientific facts. Every

worker is helping somebody, and while doing this he is contributing to what is known relating to the farm, and to the education of his associates.

Four hundred and ninety-six students have been admitted to the Department for instruction since 1897 as experts in our several lines of work. Two hundred and forty-nine of these still remain with us, not less than 132 having passed into the classified service; 185 have gone elsewhere to teach, experiment, or demonstrate in private enterprise what they have learned from their teachers, who are our best-equipped scientists in their several specialties.

The Department has been extending its work in all parts of the country during the past year wherever the producers from the soil most need help. Our most active efforts have been directed to the stamping out of foot-and-mouth disease in four of the New England States, and in studying the cotton boll-weevil in Texas and demonstrating the growing of cotton successfully in spite of the presence of the pest. Encouraging progress has been made in all the lines of research with which the Department is charged.

OUR SURPLUS PRODUCTION.

Out of their continued abundance, during the past year, the farmers of the nation have contributed food and raw materials for manufactures to hundreds of millions of people in foreign countries, besides sustaining 80,000,000 at home.

A survey of half a century discovers the remarkable character of the movement in which the farmers of this country have become the chief purveyors of the world.

In 1851 our shipments of farm products were valued at $147,000,000, while half a century later, in 1901, they amounted to $952,000,000, an increase of $805,000,000, or about 550 per cent. The farmers' export trade for the decade 1851–1860 amounted to $1,896,000,000, and in the following decade, in spite of the transfer of multitudes of men from productive to destructive life, the total was $2,431,000,000. In the decade after that, the export trade doubled and amounted to $4,864,000,000. In the next decade, the amount grew to $5,740,000,000, and the total for the decade of 1891–1900 was $7,032,000,000, or an average of over $703,000,000 a year. Subsequent to the last-named period this trade has gone on increasing and reached its highest amount in 1901 with exports valued at $952,000,000. The export trade in farm products for 1903 was valued at over $878,000,000, an amount second only to that of 1901.

The consumption of cotton in this country is now greater than that of any other country, and yet the cotton planters of the South not only supplied this market last year, but exported a surplus of 3,569,000,000

pounds, valued at $317,000,000, or for every working day in the year about 12,000,000 pounds, worth more than $1,000,000.

Represented in value, the exports of grain and grain products had about two-thirds of the importance of cotton in the last fiscal year, the value of the export being more than $221,000,000. From 46,000,000 acres of wheat there was a surplus for foreign mouths amounting to 114,000,000 bushels and 20,000,000 barrels of flour, amounts that together represent 204,000,000 bushels of wheat.

Third in importance are the exports of meats and meat products, with a grand total of $178,000,000, to which may be added $35,000,000 for live animals. Quantities that are beyond the grasp of the mind represent the exports of meats and their products. The pounds of beef were 385,000,000; of pork, 551,000,000; of lard, 491,000,000; and of oleo oil, 126,000,000.

The foregoing figures, it should be borne in mind, do not stand for the total production of the farms, but for the surplus production after the wants of the people at home have been satisfied.

THE FARMER'S BALANCE OF TRADE.

The immense exports from the farms of the country lead to an examination of the so-called balance of trade. This examination reveals what seems to have escaped the attention of the public, and that is, that the favorable balance of trade, everything included, is due to the still more favorable balance of trade in the products of the farm.

During the thirteen years 1890–1902 the average annual excess of domestic exports over imports amounted to $275,000,000, and during the same time the annual average in favor of farm products was $337,000,000, from which it is apparent that there was an average annual adverse balance of trade in products other than those of the farm amounting to $62,000,000, which the farmers offset and had left $275,000,000 to the credit of themselves and the country.

Taking the business of 1903, the comparison is much more favorable to the farmers than during the preceding thirteen-year period, since the value of domestic exports over imports was $367,000,000, the entire trade being included, while the excess for farm products was $422,000,000, which was sufficient not only to offset the unfavorable balance of trade of $56,000,000 in products other than those of the farm, but to leave, as above stated, the enormous favorable balance of $367,000,000.

During the last fourteen years there was a balance of trade in favor of farm products, without excepting any year, that amounted to $4,806,000,000. Against this was an adverse balance of trade in products other than those of the farm of $865,000,000, and the farmers not only canceled this immense obligation, but had enough left to

place $3,940,000,000 to the credit of the nation when the books of international exchange were balanced.

These figures tersely express the immense national reserve-sustaining power of the farmers of the country under present quantities of production. It is the farmers who have paid the foreign bondholders.

MAGNITUDE OF PRODUCTION.

The height to which farm production has risen to supply the demands of domestic and foreign consumption should not be overlooked. Taking the range of recent years, there is the product of wheat, 600,000,000 to 750,000,000 bushels, worth to the farmer from $350,000,000 to $450,000,000. On more than 90,000,000 acres grow 2,000,000,000 to 2,500,000,000 bushels of corn, with a value which ran up to more than $1,000,000,000 on the farm in 1902.

The oat crop now reaches close to 1,000,000,000 bushels, with a value of $300,000,000; the barley crop overruns 100,000,000 bushels, worth $50,000,000, and the rice crop in 1902 amounted to 390,000,000 pounds.

One of the most valuable three of all farm crops is that of hay, aggregating about 50,000,000 to 60,000,000 tons, worth $450,000,000 to $550,000,000; ranging between 200,000,000 and 300,000,000 bushels is the potato crop.

The acreage of the cotton crop has displayed a tendency to increase considerably during the last few years, and in 1903 was about 29,000,000 acres; the number of bales produced in recent years ranges from 10,000,000 to 11,000,000, while the value of the entire crop on the plantations has gone as high as $511,000,000 for the crop of 1900, or, if the seed is included, $530,000,000.

Tobacco is another crop of expanding proportions, and the prospect now is that within a few years ten figures will be required to represent the annual production. This crop has now climbed close to 900,000,000 pounds, valued at $60,000,000.

Only some of the principal farm products have been mentioned, but these are sufficient to indicate, in conjunction with information concerning the less important products, that the value of all farm products not fed to live stock for 1903 considerably exceeded their value in the census crop year 1899, when it was $3,742,000,000.

NATIONAL STOCK OF FARM ANIMALS.

The Department's inventory of farm animals January 1, 1903, discovers that while some classes of animals are only holding their large proportions, others are increasing. The horses number 16,557,000, with a value of $1,031,000,000. The mules have increased to 2,728,000, with a value of nearly $200,000,000.

Dairying shows marked expansion, and now depends upon 17,105,000 milch cows, with a value of $517,000,000. Other cattle of all sorts number 45,000,000, with a value of $824,000,000.

The number of sheep has had a tendency to decline at times during the last score of years, but within the last four years has increased decisively, so that now the sheep number 64,000,000, with a value of $168,000,000.

Hogs have remained about stationary in number for many years, and in 1903 were found to be 47,000,000, with a value of $365,000,000.

BETTER DISTRIBUTION OF PROGRESS.

There is one other particular feature of the farmers' improved and gratifying condition that should be noticed, and this seems to have escaped attention. During the long period of time when the new and productive land of the West was easily obtained, and when the number of farms and the amount of production there multiplied at an amazing rate, the farmers of the East and the South suffered under a severe competition and an impending overproduction, and agriculture in these sections, apart from cotton production, was outstripped in the agricultural expansion of the West. Since 1890, however, there has been a turn in the trend of this expansion; the northern half of the Mississippi Valley is not overshadowing the other sections of the country in its rate of expansion as formerly; an improvement in the welfare of farmers in other sections of the country, as well as in the North Central States, is in evidence. In other words, there is a more even distribution of expansion, progress, and welfare than before.

The South, which had been backward in its corn production for many years preceding 1890, finds itself since that time with its fraction of the national production of corn increasing faster than that of any other section; the same is true with regard to wheat, sweet potatoes, and cane and sorghum sirup; and to these may be added tobacco and farm-made butter, and horses, mules, and swine. The South occupies a second place in the rate of increase of production, in comparison with other sections, in buckwheat, hay, apple and peach trees, cattle other than milch cows, and farm-made cheese.

In a similar way, agriculture in the East is rehabilitating itself by gaining faster than in other sections of the country in the production of buckwheat and potatoes, while it stands second in order among the different sections in its increasing production of rye and of sweet potatoes, and in the number of milch cows.

The group of States embracing the Rocky Mountain and Pacific Coast region is showing a larger gain relatively than other sections in the production of rye, hay, apple trees, and farm cheese, and in the possession of sheep and milch cows; while it holds a secondary place in

relative advancement in the production of wheat, oats, barley, potatoes, and farm butter, and in the possession of horses, mules, and swine.

The North Central States have by no means lost for all products the foremost place in rapid rate of advancement that they have enjoyed for many years. Since 1890 this section has increased its production faster than other sections for oats, barley, flax, peach trees, and cattle other than milch cows; and this section does not stand second in rate of advancement in any of the products under consideration.

Thus, it appears that a new life has come to agriculture in all parts of the country, and that there are achievement, hope, and promise for the farmer everywhere.

The above review of our agricultural products and exports is presented not only in grateful acknowledgment of the bountiful Providence which has so generously filled our cup of prosperity, but also from a desire to present thus succinctly to the statesmen and to the men of affairs of this country the value and importance of this vast agricultural industry, supported by three-eighths of our working population, and contributing so greatly to the prosperity of the whole country. It is this vast constituency and still vaster industry that the Department of Agriculture is charged to protect, cherish, and encourage, and its extent can only be appreciated by those who are not brought continuously in direct contact with it, by the perusal and study of the foregoing figures and consideration of the important facts they present.

WEATHER BUREAU.

The Weather Bureau has, through its officials at the various stations throughout the country, taken an active part in public education along meteorological lines. In 12 colleges or universities during the past year Weather Bureau officials have conducted regular courses of lectures or classes of instruction in meteorology and climatology, and at 5 of these institutions the official is a member of the faculty. At 16 stations the officials have delivered occasional addresses outside of their offices to schools or colleges, and at 28 stations they have given frequent talks in their offices to pupils and teachers of schools. In 14 instances they have delivered occasional addresses outside of their offices to farmers' institutes and similar organizations. Only a few years ago there was very little instruction of this nature given in our colleges, universities, or public schools, but the demand for it has rapidly increased. The action of the Bureau in this direction will undoubtedly result in a wider knowledge and a more intelligent understanding of its work, and a consequent increase in its usefulness and value. Many of the young men who receive instruction in these classes are attracted to the service of the Bureau as an occupation, and the

Bureau profits by securing a class of employees with special training and equipment.

The year 1902–3 marks a distinct advance by the Weather Bureau in the science of meteorology, especially in two directions. From the beginning of the weather forecasts by the Government, in 1871, the necessary observations at the several stations have always been reduced to the sea-level plane. It was conceived some years ago that the numerous defects in forecasting might be diminished, and the uncertainty as to the true cause of storms removed, if similar daily charts were also constructed at higher levels, for which purpose the 3,500-foot and the 10,000-foot planes were selected. After much laborious computation, as shown in the barometry report of 1900–1901, the necessary reductions were made, and we now possess daily weather charts on the three planes mentioned. The study of these supplementary maps is going on, with encouraging prospects of more reliable forecasts of the weather conditions, and it is hoped by January 1, 1904, to make them a part of the regular daily work of the forecasting service. At present the improved data are confined to the barometric pressures, but it is most important to secure charts of the temperature on the two upper planes as well. Unfortunately, we have no observations of temperature in the higher atmosphere suitable for this purpose, and they can be secured only by means of numerous balloon and kite ascensions carrying the necessary self-registering instruments.

It has been thought proper for many reasons to establish on the Blue Ridge Mountains, at Mount Weather, Bluemont, Va., a modern meteorological observatory of the best class for scientific research pertaining to problems of weather phenomena. A building for administration and for a school of instruction is being erected, and the plans are well advanced for a suitable power house and shop for balloon and kite ascensions, which will be built during the coming year. The recent advances in solar and terrestrial meteorology justify us in preparing to study at first hand the variations in the solar activity, and the corresponding changes in the weather conditions, especially from season to season. It is a complex problem and will require the best instrumental equipment, the ablest students, and a long series of observations before it can be finally solved. The desirability of being able to foresee a year in advance the type of season probable during a given period is so great as to make it imperative to lay broad scientific foundations at the beginning of the twentieth century, which will be of utility for future generations, who will surely build a great science of cosmical meteorology upon such data as can be supplied by the Mount Weather Observatory.

SUBMARINE CABLES.

New submarine cables in connection with the vessel-reporting and storm-warning services have been laid from Sand Key to Key West,

Fla.; from Southeast Farallone to Point Reyes, Cal.; from Block Island to Narragansett Pier, R. I.; and from Glen Haven to South Manitou Island, Mich., a total of about 50 miles. Additional vessel-reporting stations have been established at Sand Key, Fla., and Southeast Farallone, Cal.

To meet the demands of the maritime and commercial interests of the Pacific coast a cable has been laid between San Francisco and the Farallone Islands, with a weather observatory and vessel-reporting station on the South Farallone Island. A wireless station has also been installed there to insure communication in future should the cable be out of order.

RIVER AND FLOOD SERVICE.

The work of the river and flood service, owing to the numerous and disastrous floods that occurred, has been a prominent feature of the year. Several of the floods were the greatest of which there is authentic record, and were remarkable both for their wide extent and for their destructive character. Our warnings were prompt and timely, and in the main remarkably accurate; and in no instance was the coming of a dangerous flood unheralded. The forecasts of the great floods of March, April, and June, 1903, afford noteworthy examples of the efficiency of this service. This should be extended to the Kansas and other rivers, where no stations have yet been established.

DISTRIBUTION OF FORECASTS AND SPECIAL WARNINGS.

Inadequate appropriations have prevented any extensions in the important work of distributing forecasts and special warnings, and of necessity our efforts have been confined to maintaining the service already in operation, with its various ramifications, and adopting such suggested improvements as might be effected without additional expense.

A marked increase (nearly 20,000) is shown in the number of places receiving forecasts by telephone without expense to the Government of the United States, and with the rapid extension of "farmers' telephone lines" opportunity is afforded for placing weather information directly in the homes of the more progressive agriculturists, as well as in the telephone exchanges of rural centers of population, where it is posted for the general information of the public.

NATIONAL CLIMATE AND CROP BULLETIN.

The National Climate and Crop Bulletin has been issued in the usual form, with charts showing the current temperature and precipitation, extremes of temperatures, and the departures from the normal of

both temperature and precipitation. In this bulletin the current meteorological conditions are discussed in their relation to crop growth from the beginning to the end of the crop season.

BUILDINGS ERECTED AND PROPOSED.

During the past fiscal year, through the appropriations by Congress, it has been possible to erect buildings for use as meteorological observatories for the Weather Bureau at the following-named places, and at a total cost of $32,922.97, viz: Amarillo, Tex.; Modena, Utah; Key West, Fla.; Sand Key, Fla.; Southeast Farallone, Cal.; and buildings are now in course of erection at the following places, the total cost of which will be $70,900, viz: Yellowstone Park, Wyo.; Duluth, Minn.; Devils Lake, N. Dak.; Havre, Mont.; Mount Weather, Va.; Block Island, R. I.; Narragansett Pier, R. I.

The wisdom of erecting buildings for the exclusive use and under the control of the Weather Bureau becomes more apparent every day. It saves to the Government the amount heretofore paid for rent of office quarters, which in many cases are unsuited to our needs, especially as regards the architecture of the roofs for the exposure of meteorological instruments.

BUREAU OF ANIMAL INDUSTRY.

A marked distinction between our country and all others is the more generous nutrition of our people. Our domestic animals contribute to this result, and furnish a large percentage of our exports. This has been brought about by abundance of comparatively cheap grass and grain rather than through superior knowledge of breeding and feeding. We have developed a track horse, a lard hog, and but little else.

The Bureau of Animal Industry has given standing in interstate and foreign commerce to our animals and their products, and is battling successfully with diseases and disabilities originating at home and abroad. It is considering the wisdom of undertaking systematic cooperation with the State experiment stations in the production of types of animals suited to our varying latitudes and conditions, in order that more economy may be observed in production.

CONTAGIOUS DISEASES OF ANIMALS.

The control of the contagious and infectious diseases of animals is one of the most important lines of work in which the Department is engaged, and this work must become more valuable and of greater necessity as the number of animals in the country increases and as traffic with countries in which such diseases exist is further developed.

FOOT-AND-MOUTH DISEASE.

Last year, for the first time in eighteen years, foot-and-mouth disease was discovered in the United States. The manner in which the contagion was brought in is not definitely known, but it evidently came with some articles of merchandise, as it first appeared near the docks of the port of Boston, and spread from there toward the interior. When the existence of this disease was recognized and brought to the attention of the Department the contagion had already spread over the eastern part of the State of Massachusetts and into the States of Rhode Island, New Hampshire, and Vermont. The whole country was menaced with the plague, and it was only by the adoption of radical measures and by the prompt, efficient, and indefatigable work of the inspectors that the contagion was controlled and eradicated.

The plan of work was, briefly, to rigidly quarantine all infected premises and the animals upon them, to slaughter at the earliest practicable moment all susceptible animals on such premises, and to disinfect the stables, pens, and utensils in a thorough manner. Operations were begun December 1, 1902, and the last diseased herd in this outbreak was slaughtered May 9, 1903. The cooperation of the executive departments of the several affected States was prompt and complete, and enabled the Federal authorities to enforce regulations and stamp out the disease wherever it was found. The number of animals slaughtered on account of this disease was 4,461, of which 3,872 were cattle, 360 hogs, and 229 sheep and goats. There was allowed by this Department 70 per cent of the appraised valuation as indemnity. The total amount thus paid was $128,908.57. There were other expenses, such as for salaries, traveling, labor, disinfectants, etc., which were additional to this amount, but the total cost of the eradication of the disease was less than $300,000.

The stock raisers of the country were saved from a great calamity by the successful termination of this work. It is the general history of the disease in other countries that where an outbreak assumes the proportions of the one which existed in New England last winter it spreads over the whole country, affecting sooner or later practically all of the cattle and a large part of the sheep and hogs. As the value of grown cattle shrinks from 20 to 30 per cent in consequence of the disease, as some of these die, together with a considerable proportion of the young animals, and as hogs and sheep are also seriously affected, it is plain that the direct losses from a general extension of the contagion over the country would be some hundreds of millions of dollars, while the indirect losses from domestic quarantines and restrictions on traffic and from embargoes on our export trade would be simply incalculable. These losses were avoided, because the Department had a force of competent and trained veterinarians who were at once taken

from their duties in other parts of the country and concentrated in the infected section, and who loyally and cheerfully endured the hardships of a winter campaign in the rural districts, where the cold much of the time was extreme, the roads blocked with snow, and the difficulties connected with the disposal of the carcasses of slaughtered animals and the disinfection of the premises were almost insurmountable.

SHEEP SCAB.

Energetic work has been carried on during the year with the object of controlling as effectually as possible the contagious disease of sheep known as scabies, or scab. Heretofore but little has been done for the repression of this disease except in the channels of interstate commerce, and it was hoped that the prohibition of the shipment of diseased sheep would be sufficient to cause the owners of such animals to treat them on the farms and ranges, and thus eradicate the contagion. While this result followed in some cases, it is unfortunately true that the greater part of the owners of this class of animals have neglected to take proper measures and have apparently relied upon their ability to elude or deceive the inspectors and run their animals through to market without the actual condition being discovered. The attempts to accomplish this have kept the stock cars and stock pens used for animals in interstate commerce so thoroughly infected that satisfactory progress with the disease could not be made. It was therefore determined to cooperate with some of the worst infected States, and attack the contagion at its origin by stamping it out on the premises where it exists and propagates from year to year. This has required somewhat of an increase of the field-inspection force, but it is apparently only in this way that the disease can be controlled.

The inspectors have inspected in this work during the year an aggregate of 16,444,370 head of sheep, and have supervised the dipping of 2,167,002 sheep, of which 394,636 were dipped twice. This enormous amount of work has had great influence for good, and if continued for a few years, will free the sheep industry from this incubus, which has for many years been the source of great discouragement and loss.

TEXAS FEVER.

The inspection and supervision of cattle in transit from the Texas-fever district has also involved a great amount of work. These animals are capable of spreading contagion through the ticks with which they are infested, and must, therefore, be kept in different cars and yards and driven over different roads from those used for other cattle. It is moreover necessary to inspect many cattle from the district adjacent to the infected section in order to determine definitely that they have not been exposed, and that they may safely be allowed to go forward to market through the channels of interstate commerce

without danger to the animals of any other section of the country. This service required the inspection of 1,620,403 cattle from the infected district, and of 389,525 cattle from the adjacent district. To guard against the spread of the contagion by infected cars, 66,116 of these were cleaned and disinfected by the direction and under the supervision of the inspectors.

It is well known that if Southern cattle are entirely freed from that species of ticks known as the *Boophilus annulatus* they can be allowed to mingle with the most susceptible animals without danger. Many efforts have been made to discover a practicable method for destroying this parasite without injuring the cattle, and the Bureau of Animal Industry has experimented for years with this object in view. Such treatment, if successful, would relieve most of the Southern cattle from quarantine restrictions, and would make these cattle bring more money in the markets of the country. After many failures, apparent success has been reached by dipping the cattle in the crude oil obtained from certain Texas wells. This oil is heavily charged with sulphur, and in the experiments so far made has not materially affected the cattle. It is necessary to regard such a treatment with some reserve until a large number of animals have been treated under the conditions which obtain in the practical shipment of cattle from the infected district to the markets; but it may be said now that this oil has been tried at the animal industry experiment station near Washington with entirely successful results, being distinctly superior to any other substance tested, and that it has also been tried in the field with abou 70 head of cattle, the effect being equally favorable. Arrangements are now made for using the treatment on a much larger number of animals, and if, as hoped, no objections to it develop, it will be of inestimable value to the cattle industry of the Southern States.

HOG CHOLERA.

The losses from contagious disease among hogs in the United States have been enormous, probably reaching in some years the aggregate of $75,000,000, and being seldom less than $30,000,000. This Department has for a quarter of a century been conducting scientific experiments with a view to elucidating the nature of the disease and developing some practical treatment by which it might be controlled; and while much has been discovered as to the effects of certain bacilli, and as to the desirability of sanitary measures, no satisfactory method of controlling the disease has been evolved. Recently it has been shown by the Bureau of Animal Industry that there is, at least in some of the outbreaks, a different cause at work from what has heretofore been suspected. When the bacilli which have been supposed to cause the disease are all filtered from the blood, this liquid is still capable of producing the malady and has apparently the same degree of virulence

as it had before filtering. It is yet too early to estimate the proportion of the losses attributed to hog cholera which are caused by this agent, which passes through the finest filters, and which in this condition must be too small to be revealed by the highest powers of the microscope. Investigations are now being made to throw some light upon this question; but enough is already known to make it probable that this discovery will prove of very great importance.

TUBERCULOSIS.

Investigations have been conducted with human and animal tuberculosis, with a view of determining whether the disease is transmissible from man to animals or from animals to man. It has been shown by the experiments which have been made that there are cases of human tuberculosis in which the bacilli are as virulent for cattle as are the bacilli obtained from animals affected with the disease. The conclusion from this fact is that either human and animal tuberculosis are identical and intercommunicable or the persons from whom these virulent bacilli were obtained had been infected with bovine tuberculosis. In either case, it must hereafter be admitted that the tuberculosis of animals is a menace to human health, and that both for economical and for sanitary reasons measures should be adopted for its control.

BLACKLEG.

The work against blackleg continues satisfactory. During the season the Bureau vaccine was used with 775,877 cattle, and the percentage of deaths after vaccination, not counting those animals that were evidently diseased before vaccination, was 0.53; whereas before vaccination the average percentage of losses among the same herds was 2.69.

INSPECTION OF ANIMALS AND ANIMAL PRODUCTS.

The number of certificates of inspection issued for American cattle exported to Europe was 960. The number of clearances of vessels carrying live stock was 634. The number of sheep inspected for export to Europe decreased from 211,224 in 1902 to 111,448 this year. The exports of horses fell off very considerably also, being 3,910 this year, as against 10,967 in 1902. Of the 228,365 cattle inspected for export, 226,613 went to Great Britain.

MEAT INSPECTION.

In the meat-inspection service the number of ante-mortem inspections was as follows: Cattle, 11,988,760; sheep, 14,654,249; calves, 1,041,138; hogs, 31,546,222; horses, 344; a total of all animals of 59,230,713. The following post-mortem inspections were also made: Cattle, 6,165,890; sheep, 8,598,175; calves, 670,173; hogs, 21,827,047; horses, 344—a total of 37,261,629.

The meat-inspection tag or label was placed upon 21,124,318 quarters, 362,689 pieces, and 186 sacks of beef; 8,571,643 carcasses of sheep; 667,259 carcasses of calves; 880,945 carcasses of hogs, and 696,279 sacks of pork.

The meat-inspection stamp was affixed to packages of meat products that had received the ordinary inspection, as follows: 7,520,854 of beef, 59,314 of mutton, 14,601,202 of pork, and 70 of horseflesh—a total of 22,181,440.

The number of cars sealed containing inspected meat products for shipment from official abattoirs and other places was 67,046.

The number of certificates of ordinary inspection issued for meat products for export, exclusive of horseflesh, was 30,152. Of beef, there were 1,388,633 quarters, 20,422 pieces, 401 bags, and 1,352,291 packages, with a weight of 371,920,737 pounds; of mutton, there were 35,394 carcasses and 22,527 packages, weighing 2,729,013 pounds; of pork, there were 24,380 carcasses and 506,311 packages, weighing 133,122,610 pounds.

The decrease in the certified exports of beef and pork, noted in the last report, continued, the figures showing a decline from the last year of 45,070,025 pounds of beef, and 55,237,401 pounds of pork. The exports of mutton were nearly two and a half times as much as last year, when there were 1,145,248 pounds certified.

There was one shipment of horseflesh, 70 packages, weighing 28,000 pounds.

The cost of the work of the ordinary meat inspection for the year was $711,546.18.

MICROSCOPICALLY INSPECTED PORK.

The exports of microscopically inspected pork to countries requiring inspection decreased 14,572,888 pounds—from 33,681,229 in 1902 to 19,108,341 in 1903. The cost of the microscopic inspection was $78,179.63, being an average of 16 cents for each examination, and for each pound exported 0.41 cent.

IMPORTS FROM MEXICO.

There were imported from Mexico 52,780 cattle, 4,119 sheep, 1,794 goats, and small numbers of other animals. At seacoast ports there were imported 2,602 horses and 169 ponies.

RENOVATED-BUTTER INSPECTION.

The inspection of dairy products under the act of March 2, 1902, was continued. Repeated inspections were made of 82 renovated-butter factories, located in 17 States, and the quantity of butter made by these was 54,656,800 pounds. This was an increase of 9 per cent over the previous year.

BUREAU OF PLANT INDUSTRY.

The work of the Bureau of Plant Industry has been pushed with vigor during the year. The advances made and the suggestions and recommendations for future work are set forth under the accompanying headings, and are believed, in all cases, to be for the betterment of agricultural conditions in the United States.

COOPERATION WITH THE EXPERIMENT STATIONS.

The Bureau is cooperating now with more than forty State experiment stations along many varied lines. The improvement of forage crop conditions, the extension of the work on cereals, the testing of new seeds and plants from home and abroad, demonstration work in the treatment of plant diseases, etc., are some of the more important problems upon which the stations are contributing to the Bureau.

THE DISTRIBUTION OF SEEDS AND PLANTS.

As set forth in my last report, a number of changes have been made in the securing and distributing of seed for Congressional purposes. Instead of contracting for all the seed and having it put up by one firm, the Department has purchased the seed and arranged for the putting of it up by contract. This is a great improvement over the old method, as it practically removes all opportunities for difficulties which have been encountered in the past in the matter of substituting inferior seeds for those called for, giving short weights, etc. With the enormous amount of seed that has to be purchased in the Congressional distribution, it is impossible to make provision in advance for everything that will be required. If seed were a fixed commodity it would not be difficult to make specific contracts for the delivery of particular quantities at particular times. So much, however, depends upon weather and other conditions that it can never be determined until the harvests are all over as to what seed can and what can not be obtained. For this reason it is not practicable, nor is it desirable, that the Department should endeavor to secure its seed by the ordinary contract system. Inferior seed can so easily be substituted for good that the Department must devote special attention to this phase of the subject in order that nothing but the best may go out.

To accomplish this, seed, for the most part, must be purchased in the open market from men who are known to be reliable and in whom dependence can be placed for furnishing seed according to contract. To protect the Department in all of its interests, inspectors are kept constantly in the field during the growing season looking after the crops that are being grown for the Department and in other ways keeping track of the seed conditions in general, so as to be intelligently guided

in the matter of purchases. Furthermore, the Department, by judicious placing of orders for seed, can encourage home industries. This it is endeavoring to do in every case where it is practicable. In a number of instances, where certain kinds of seed are grown to a large extent abroad, the Department has placed its orders with American growers in order to encourage the work in this country. This is particularly the case with flower seed, of which a number of kinds are now being specially grown for the Department on the Pacific coast and elsewhere.

Carrying out the plan as set forth in my last report, special attention has been given to particular crops, such as cotton, forage plants, and other crops. In the matter of cottons an effort has been made to secure for general distribution varieties which have come to the attention of the Department's officers as valuable sorts, but of local distribution only. The work in this connection has been exceedingly valuable, and many reports have been received as to the greater usefulness of the varieties distributed over those locally grown. The same is true of a large number of forage crops. A particular effort has been made in the matter of distributing home-grown sugar-beet seed. It has been found that sugar-beet seed can be grown successfully in this country, and that the beets from such seed yield a high sugar content. Ten thousand pounds of such seed were distributed last year, and careful work was inaugurated to determine the value of the product from these seeds as compared with seed grown abroad.

With regard to the securing and distributing of miscellaneous garden and flower seed, the fact remains that this work does not accomplish the ends for which the law was originally framed. There are collected, put up, and distributed now, on Congressional orders, nearly 40,000,000 packets of miscellaneous vegetable and flower seeds each year. These seeds are the best that can be obtained in the market, but from the fact that large numbers of packets are wanted, the seed obtained can be of standard sorts only, such as are to be found everywhere for sale in the open market. As there is no practical object to be gained in distributing this kind of seed, it seems very desirable that some change be made. To this end, it would seem wise to limit our work entirely to the securing and distributing of seeds, plants, etc., of new and rare sorts. There is still much to be done in the way of securing seeds, plants, etc., of this kind from abroad, but still more to be accomplished in careful investigations of our own possibilities in this direction. There are many valuable plants scattered all over this country which are still little known outside of their respective localities. These should be collected, tested, and distributed. There are also great possibilities of improving agricultural industries by distributing specially bred seeds and plants.

As the plant-breeding work of the Department increases, opportunities for securing seed of this nature will accumulate. To do this work in the most effective manner, arrangements could be made in all cases to secure the advice and assistance of Senators and Representatives who have agricultural constituents. The Department has a well-organized force of scientists who are thoroughly familiar with the general conditions of soil and climate in nearly all parts of the country. Special crops could be selected for special purposes, and with the advice and cooperation of members of Congress such crops could be placed where they would do the most good. This is a line of work that would result in very much more value to individual districts throughout the country than the distribution of a large quantity of common varieties of garden seed, which have no particular merits so far as newness or promise are concerned. I shall inaugurate the coming year work along the lines here mentioned, and hope to receive the cooperation and aid of Congress in this matter.

NEW SEEDS AND PLANTS FROM ABROAD.

During the past year the seeds secured by our agents in Asia and Africa, to whose explorations reference was made in my last report, have been received and distributed. Special attention was paid this year to the reorganization of the work within the United States. It was felt that the time had come for more thorough work within this country, since there were many introductions that had not been pushed as they deserved to be. The clerical force was therefore strengthened, and a systematic attempt was made to secure reports from persons who had received seeds and plants. Many of these reports are now on file, and the work of compiling them to make them useful in further work is going on.

GRAINS.

Special attention has been given the grains. New wheats for the Northwest, new oats, new millets, and other crops have been pushed. The work on durum or macaroni wheats has been highly successful. Probably 10,000,000 bushels of this class of wheat were harvested in the crop of 1903. The value of macaroni wheats in the drier portions of the Great Plains is now fully established, and the demand for them is increasing as their value becomes better known. The quality of the wheats is always better in the drier areas, and in general they are not adapted to the ordinary spring and winter wheat districts. Where there is sufficient rainfall for good crops of spring and winter wheats, macaroni wheat should not be grown; especially as it is likely to be inferior in quality to such wheat grown in the drier regions, and could not, under such conditions, bring a price equal to that of the ordinary

grades of spring and winter wheats or the better grades of macaroni wheat. There is a constant foreign market sufficient for a good export trade, as soon as the business can be facilitated by opening up the proper trade channels, but the home demand at the local mills is most important and is rapidly increasing. At least 20 mills are now handling this wheat, and there may be others not yet known to this Department. At an average capacity, these mills, running half time on macaroni wheat, would consume between 3,000,000 and 4,000,000 bushels during the year. A large part of the product is in the form of semolina, which is now being used by eight to ten of the most important macaroni factories in the country, all of which had formerly used ordinary bread flour, and a number of which will hereafter use only the semolina from macaroni wheat.

Tests have been made during the year, first by private institutions and some of the experiment stations, and then by the Department, to determine the value of macaroni wheat flour for bread. The results appear to show that a very good quality of bread can be made from such flour. After a number of preliminary experiments by the Department a test was finally made in which 200 loaves, made from macaroni wheat flour, were compared with an equal number made from the highest grade of spring wheat patent. Selected experts among the millers, bakers, flour inspectors, grain dealers, and teachers of domestic economy throughout the country stated their opinions in writing as to the relative merits of the two breads. A consensus of these opinions showed that in this experiment, at least, the macaroni flour made a fine quality of bread.

ALFALFA.

The Turkestan alfalfa seed secured by our agent in Asia was distributed through the active cooperation of members of Congress. This distribution was made in such a way that it would result in a supply of home-grown seed being available in the future, so that we may avoid the expense and uncertainty attending the importation of the seed. Reports received up to date indicate that many of the plantings made have been successful, and there is reason to hope that this valuable variety has been permanently introduced into the United States.

Of especial importance will be the introduction of an alfalfa adapted to the alkali parts of our arid Southwest. Work on this problem has been pushed forward during the year. The seed secured by our explorer in Algeria, as well as some sent by our representative from Turkestan, has been planted under the personal supervision of the Department experts. There is reason to believe that this introduction will be successful, in which case it will be possible to reclaim large areas of land in the Southwest that are now too alkaline for alfalfa.

RICE.

The rice work done during the past year demonstrated the very important fact that by the use of proper varieties it is possible to materially extend the period of harvest. This has all along been one of the serious difficulties which the growers have had to encounter, but by the use of varieties which the Department has introduced it will be practicable to sow large tracts and to harvest as the different varieties ripen, without haste and without loss.

FLAX.

The cultivation of flax is one of the oldest agricultural industries in the United States, but it has been forced to move steadily westward to new lands, as it became unprofitable in the older States. It was thought that flax exhausted the soil and could thus only be grown for a few years in one locality, but recent research has shown that the real cause of "flax-sick" land is a disease, the germ of which, living over in the soil, soon makes it impossible to produce flax where this disease is prevalent. The importance of the industry to our Northwestern States may be judged when it is known that in 1901 the State of North Dakota alone produced $19,460,000 worth of flaxseed. To this must be added the growing industry of using the fiber of the seed flax for making binder twine and other coarse materials. This industry is seriously threatened by the same disease that has forced flax culture to move out of the Eastern States, and the Department has sent an expert to Europe in the hope that in some of the provinces of Russia a variety resistant to this disease might be found. In any event, it will be possible to secure better varieties than we now have and to learn how the farmers of Europe have managed to hold this disease in check.

NEW LINES OF WORK IN SEED AND PLANT INTRODUCTION.

Among several new introductions designed especially to meet the needs of the Southeast have been improved varieties of cassava, which give promise of great value for stock-feeding purposes and starch making; superior varieties of mango for cultivation in the extreme South, and Mexican peaches and apricots which, it is thought, will be better adapted to cultivation in the South than the varieties we now have. A number of plants of a choice variety of pineapple were also received from South Africa through the generosity of Hon. Barbour Lathrop.

Work has also been begun on the establishment of the matting industry in the United States. At present matting to the value of nearly $5,000,000 is annually imported. A loom has been perfected for weaving the material, and the Department has undertaken the establishing of the cultivation of the raw material.

The Department annually receives many hundreds of packages of seeds and plants from abroad. These are all being carefully tested, and as fast as any give promise of value they will be propagated for further distribution.

The lines of work here enumerated are capable of great extension, and will result, as experience has already shown, in building up new industries of great importance to the country.

DRY-LAND AGRICULTURE.

Nearly one-third of the area of the United States has insufficient rainfall for the best culture of the ordinary crop plants. Considerable tracts of land are already irrigated and much more will be artificially watered in the future; but there must eventually remain enormous areas—doubtless nearly a fourth of the entire land surface of this country—which are doomed to remain perpetually in their present arid or semiarid condition for the want of an adequate supply of water for irrigation. The total rainfall over the lands lying between the one hundredth and one hundred and twentieth principal meridians is inadequate to irrigate more than a small fraction of the arable lands, no matter how carefully conserved and used. Dry farming is then a necessity, in order to utilize such lands where irrigation can never be practiced.

The Bureau of Plant Industry is occupying itself with the future of these regions, and is making a thorough study of the conditions and of the best ways and means of meeting them.

It is believed that not only can the grazing capacity of such lands be increased by intelligent management, but that large areas of such dry, but often extremely fertile, lands can ultimately be utilized for "dry farming." It is believed that as the irrigable lands become more and more completely occupied, there will be an increasing appreciation of the value of, and a greater effort to utilize, the dry, unirrigable lands adjoining settlements founded in the irrigated regions. In the meantime the scientists of this Department are endeavoring to secure plants that will grow in very dry soils, and at the same time yield paying crops that can be absorbed by our markets or profitably utilized on the farm. To carry out such introduction of new crops it is necessary to study most carefully the life history of each particular plant, in order to determine with some degree of accuracy its needs as to climate and soil, also its cultural requirements and the best methods of marketing or otherwise utilizing its products. It is only by carrying out in advance a life-history investigation in the most scientific way that it will be possible to introduce such new crops into profitable culture on a commercial scale without running the risk of most costly and discouraging failures.

To extend this important work a small increase in the appropriations has been included in the estimates of this Bureau.

NITROGEN-FIXING BACTERIA.

The fact that leguminous crops, like peas and clover, can obtain nitrogen directly from the atmosphere when certain bacteria are present on the roots has been known for a long time, and many attempts have been made to cultivate and use these bacteria in agricultural practice. Attention has been called in past reports to the progress the Department has made in investigating this problem. At the time of the last report the reason for the failure of former work from a practical standpoint, both in America and in Europe, had been determined, and a new, simple, cheap, and thoroughly satisfactory method of cultivating, distributing, and using these nitrogen-gathering organisms for all important crops had been perfected. During the past season the value of these bacteria has been demonstrated in extensive field tests. Good stands of clover and alfalfa, vetch, cowpeas, etc., have been secured in soils where, without the bacteria, these crops were a failure. The field work also demonstrated that soil and seed inoculation are equally valuable, so that either method may be used according to convenience. As a result of these experiments the Department is now prepared to furnish, in reasonable quantity, organisms for all the principal leguminous crops. Patents have been applied for, covering all the processes used, in order to make them secure for general public use. To enlarge the scope of this work and to carry on the necessary field demonstrations, an increase in the funds of the plant physiological and pathological investigations has been included in the estimates.

WATER CONTAMINATION BY ALGÆ.

It is well known that algæ of various kinds play an important part in the contamination of water supplies. The bad odors and tastes which some varieties of these plants give to water make it unpalatable to stock as well as to man. Some of the algæ also smother out aquatic crops, like cress, and furnish breeding places and food for mosquitoes. The physiologists of the Bureau of Plant Industry have now developed a cheap and effective method of exterminating algæ, which promises to be of universal application, in reservoirs, lakes, ponds, etc., where algal pollution exists. Extensive tests are now being carried out in cooperation with various board of health and water engineers, and the results so far have been extremely satisfactory. When the tests have been completed a full report will be issued and the method fully disclosed.

NEW LONG-STAPLE UPLAND COTTON.

Attention was called in the last report to the fact that the plant-breeding experts had secured some hybrid long-staple Upland cottons which promised to be of great value. These are of the ideal type desired, having large bolls, very productive, with long, fine fiber, about $1\frac{1}{4}$ and $1\frac{3}{4}$ inches, borne on smooth black seeds. Preliminary field tests of the varieties have now been completed, and several of the best appear to be already fixed in type and come true by seed. Extensive field tests are under way, and if the results of the present season's work are satisfactory seed will be grown for distribution. Much attention has also been given to the improvement of the ordinary Upland types of cotton by straight selection. Many growers have become interested in this work, and appreciate the value and importance of careful selection of seed.

EGYPTIAN COTTON.

Another important line of work which is receiving considerable attention at the hands of the Physiologist and Pathologist is the introduction and establishment of the best varieties of Egyptian cotton. We now import annually about $7,500,000 worth of these cottons, and the demand is rapidly increasing. When first introduced, most of these varieties gave comparatively light yields, and in some cases the fiber apparently lost some of its essential characteristics. These difficulties, however, are gradually being overcome as the result of careful selection and breeding. Samples of fiber grown last year in experiment patches have been submitted to experts in this country and Europe, and several of them have been pronounced equal to the best Egyptian. Manufacturing tests are now in progress. The indications at the present stage of experiments favor the belief that we shall soon have varieties adapted to cultivation in this country. The tests are in progress in Georgia, South Carolina, Mississippi, Texas, New Mexico, Arizona, and southern California.

DISEASE-RESISTANT COTTONS.

Great interest has been manifested by planters and handlers of cotton in our work of securing disease-resistant strains or varieties. The wilt-resistant Sea Island varieties distributed by the Department last year and this year have proved highly satisfactory. Wilt-resistant Upland strains have now been developed and are being grown on a large scale this season for the production of seed. Growers in all parts of the cotton belt where wilt occurs have adopted the method of resistant-seed selection recommended by the Department. In infected land the ordinary sorts are a complete failure, while the resistant varieties produce a good crop. Considerable progress has also been made in

selecting varieties resistant to Texas root rot, the boll-weevil, and other serious pests.

DISEASES OF SUGAR BEETS.

The work on sugar-beet diseases was continued during the year. The spraying experiments with Bordeaux mixture for the control of leaf blight were entirely satisfactory in holding the diseases in check, and resulted in an increase of approximately 50 per cent in the tonnage. Further investigations were also made of the disease known as curly top, which was prevalent last year and has been even more serious the present season. So far we have been unable to determine the cause of this malady, but there is hope of securing strains resistant to the disease. A small increase in the appropriations for this work has been put in my estimates.

DISEASES OF ORCHARD FRUITS.

The work on diseases of orchard fruits for the past year has been largely in the nature of demonstrative experiments, the idea being to show the practical growers how to put into operation the various methods of fighting disease. Especial attention has been given to little peach in Michigan and New York. In the former State, in cooperation with the State authorities, the disease has been stamped out of a large area. The principal work in pear blight has been carried on in Georgia. In the north Georgia experiments the treatment was entirely successful, the disease being eradicated from the experimental orchards. In the south Georgia experiments, while the disease was not completely eradicated, the treatment greatly improved the condition of the orchards as compared with the surrounding untreated orchards. From the large field experiments in the past two years the Department now feels certain that bacterial blight of pears and apples can be controlled if the treatment recommended by the Department is carried out thoroughly. Similar demonstrative work will be done in some other pear or apple section the coming season.

DISEASES OF TRUCK CROPS.

The intensive culture of vegetables for home and foreign markets has developed to great proportions in the United States. Wherever crops are grown on an extensive scale the appearance of a disease becomes a serious matter, and often the cause of great loss. In nearly every important truck section serious diseases have appeared, and wherever they have been called to the attention of the Department an effort has been made to determine the cause, and if possible to suggest a remedy. The loss to the cucumber growers in the South Atlantic trucking regions and in the Mississippi Valley was heavy this year,

owing to the prevalence of bacterial wilt and downy mildew. Information was furnished to the growers relative to the means of controlling these two diseases. Considerable work was also done with watermelon, tomato, and cabbage wilt. The only way to control these wilt diseases is by the use of resistant varieties. In the case of the watermelon, the citron and some foreign melons have proved to be wilt-resistant, and hybrids between them and the native varieties were also resistant and immensely productive. An endeavor is being made to fix a type of these hybrids. We have also succeeded in obtaining resistant selections from American varieties. With tomato and cabbage a similar line of work has been started, with promise of success. Further tests of the variety of cowpeas known as "Little Iron," resistant to wilt and root knot, have been made during the year, and even in the worst infected soils this variety has proved perfectly resistant. It has been crossed with heavier yielding varieties, with the hope of obtaining improved strains.

CALIFORNIA VINE DISEASE.

Attention has been called from time to time to the progress that has been made in efforts to find a method of controlling the California vine disease, a malady the cause of which still remains unknown. Experiments with grafting stocks have been in progress in the center of the badly infected district for over eight years. These experiments have included the grafting of some 400 acres of vines, the enterprise being conducted in cooperation with leading viticulturists in California. The Lenoir vine is resistant to the disease, and its use either as a top graft or as a root upon which to graft other varieties has been found effectual in resisting the disease.

New varieties of grape, which have received Lenoir blood through hybridizing, have shown great resistance to the same disease.

So far as this experiment has gone, therefore, it seems probable that a satisfactory means of permanently overcoming the disease has been found.

TIMBER PRESERVATION AND SEASONING.

The work of timber preservation and seasoning has been conducted by the cooperation of the Bureau of Plant Industry and the Bureau of Forestry. The saving caused by improved methods of cutting timber to insure longer life has already been very great. In one instance about $50,000 was saved in six months. Extensive tests were carried on in cooperation with railway, telegraph, telephone, and mining companies, to determine the amount of water evaporated from timber. Drying out timber according to methods suggested by the Department has led to a great saving in freight and increased length of life of the timber,

besides resulting in a saving of labor in handling it. Various preservative processes have been tested during the year, and considerable advance has been made in this art as the result of the Department's investigations. Our aim is to secure a process which will be so cheap and effective as to make it within the reach of even the small user of timber.

WORK WITH MUSHROOMS.

An industry of considerable importance has sprung up in this country in the growing of mushrooms for market; but so far it has not reached great proportions, owing to the fact that most of the spawn has to be imported. We also import in the shape of canned mushrooms about 2,300,000 pounds annually, principally from France. There is no reason why this important food plant should not be grown here to a sufficient extent to cover all our needs. One of the greatest difficulties of mushroom growers, both in this country and in Europe, has been the uncertainty of growing a productive spawn of high vitality, and so far practically only one variety of mushroom has been cultivated commercially. The Department has now discovered a simple and practical method by which we have produced a high grade of spawn, not only of the cultivated mushrooms, but of many of the wild sorts which it is desirable to cultivate. The perfection of a simple and effective method of propagation, as above stated, applicable to all varieties of mushrooms, is probably the most important step in mushroom culture that has ever been made.

DRUG AND MEDICINAL PLANTS.

The extensive importations of crude drugs, amounting to more than $3,000,000 annually, have led to many attempts to cultivate drug plants in this country. In most instances this work, entered into by persons who were without adequate information in regard to the conditions required, has resulted in discouragement and loss. Experiments undertaken by the Botanist to determine the actual cost of producing, curing, and preparing for market certain kinds of crude drugs, especially leaves of plants like stramonium, indicate that they can not be produced profitably unless they may be grown where land and labor are cheap, and where the growing season is long. An experiment in curing the leaves with artificial heat gave very promising results, and if this method proves to be entirely satisfactory a great saving in time and labor will be accomplished in this part of the work, with the assurance of greater uniformity in the product.

The cultivation of golden seal, seneca snakeroot, and other similar native drug plants that are becoming exterminated in the wild state, has been begun on a small scale, to secure definite knowledge in regard to their life habits and to determine the conditions under which they

may be cultivated. Owing to the increasing demand for them and their rapid disappearance from the forests, their successful domestication is extremely desirable.

POISONOUS PLANTS.

The important results from the poisonous-plant investigations conducted by the Botanist in previous years have been followed by an increased demand for further work along this line. The annual loss of sheep from eating poisonous plants on the ranges of the Northwest has been estimated to exceed $400,000. There are also very considerable losses among cattle and horses on the Western ranges, due to death camas, loco weed, and other poisonous plants. Besides a large amount of miscellaneous work in this direction, with the accumulation of important information in regard to various kinds of poisonous plants, special investigations have been made with two important groups—death camas and the lupines.

The excellent lupine forage, which has been avoided by many stockmen because they lacked knowledge of the character of its poisonous properties, may be utilized, providing certain precautions are regarded. Sheep must not be allowed to eat freely of lupines when coming hungry and thirsty from a dry, barren range. Some other food, preferably of a succulent character, and a plentiful supply of water should be given to animals grazing on lupines.

FIBER PLANTS.

The importation of vegetable fibers amounts to more than $30,000,000 annually, and the quantity is continually increasing; yet it is scarcely sufficient to meet the demands of our increasing cordage and textile industries. There are areas in this country where soil and climatic conditions are as well suited to the growth of flax and hemp as anywhere in the world; yet nearly all of the flax fiber and more than half of the hemp fiber used in our manufactures is imported. To compete successfully with the foreign product, our farmers must produce a fiber of equal or superior quality at a relatively low cost. The first requisite for superior quality of fiber is an improved variety of the flax or hemp plant. With this object in view, seeds of improved foreign varieties are being imported, and selections of seed are being made from American-grown plants. Reduction in the cost of producing the fiber must be brought about mainly by the introduction of improved methods of handling the crops and the substitution of machinery for the large amount of skilled hand labor which has heretofore been regarded as necessary in the preparation of the fiber. Carefully conducted experiments are needed to demonstrate the practicability of new methods that will reduce the cost of production.

IMPROVEMENT IN MANILA FIBER.

Manila fiber is the strongest and most important material used in the manufacture of the better grades of cordage. With a greatly increased demand during the past five years, and consequent high prices, a tendency arose among Philippine producers of manila fiber to sacrifice quality for quantity. Importations showed carelessness in preparing and in grading the fiber, a condition that threatened serious injury to the market for this, the most important product of the Philippine Islands. After careful examination of the fiber in the bales as imported, a report was forwarded to the Philippine government, by whom immediate action was taken and a thorough investigation made of the production of manila fiber in the field and its preparation for export. A law has been drafted by the Philippine government regulating the methods of cleaning the fiber, and also to provide for inspection of fiber to be exported. The higher standard of quality and the uniformity of grade assured under this law will not only result in great satisfaction to the manufacturers and users of manila cordage, but it will tend to still further increase the market for this most useful fiber.

GRAIN-GRADING METHODS.

The inspection and grading of grain, which is a prominent feature of our grain business, has been the cause of some apparently well-founded dissatisfaction in both our domestic and foreign trade. The chief cause of this has been that grain inspectors have had, as a rule, no adequate means of educating their judgment, upon which they must rely for the greater part of their work, and the inspection departments have had no very satisfactory apparatus for settling disputed or appealed cases. During the past year the Department has developed an apparatus for determining the moisture content of grain, particularly corn. This apparatus, essentially an air bath and a delicate balance, enables any inspector or warehouseman to determine the condition and probable keeping quality of corn; since excessive moisture is the principal cause of deterioration in this cereal.

Methods of accurately measuring essential qualities and defects of any sample of grain are a necessary preliminary to a satisfactory system of grain grading. The Department is, therefore, endeavoring to learn what these essentials are for each class of grain and how they can best be measured, so that grain inspectors may have available the means to do their work with the highest possible degree of efficiency.

The general adoption of such methods is likely to be of great benefit to the grain trade, as it will naturally result in greater definiteness of rules for grades and more uniform work by inspection departments.

FOREIGN COMPARED WITH DOMESTIC CLOVER SEED.

For the past two years cooperative work has been carried on between the Bureau of Plant Industry and several of the agricultural experiment stations to determine the relative value of foreign and domestic red clover. The seed raised in this country has given a larger yield of hay, though one sample from Russia gives promise of a good yield in the northern tier of States. Experiments will be undertaken to determine the relative feeding values.

TYPE LOCALITIES AND CHANGE OF SEED.

The work done on foreign and domestic clovers shows that there is a marked effect on general thriftiness, yield, and earliness when seed from one locality is sown in another where it is subjected to different conditions of climate and soil. Under the present methods of handling in this country, the seed is all brought together at the large market centers, where it is bulked and graded according to appearance, without regard to place of growth. This seed is then distributed to the small dealers throughout the clover-growing area. While the indiscriminate mixture and change of seed resulting from this method of handling may prove beneficial in some cases, it is often undoubtedly a distinct disadvantage.

The seed of all of our grass and forage plants, as well as much of our vegetable and grain seed, is produced under similar conditions, thus preventing any knowledge of origin or special adaptability.

A thorough study should be made of our principal crops to determine the type or best locality for seed production, as well as the advantage or disadvantage of changing seed from one locality to another, and the limits within which this should be done.

A study should also be made of both the foreign and domestic seed production of the crops of which we now import large quantities, so that the domestic production may be aided and encouraged as far as possible.

DEMONSTRATION WORK WITH FORAGE CROPS.

The office of Grass and Forage Plant Investigations has put in the field a number of agents, whose duty it is to visit farmers in sections where forage plants are needed and arrange with them to grow a small area of some crop which is known to be valuable in that section. In this way much interest has been created in crops which were new or comparatively so, particularly in the cotton-growing States. As a result of this work, there is now a decided movement toward a diversified system of farming.

In addition to the above, a number of small demonstration farms have been established, on which various grasses and forage plants are grown

under the direct supervision of officers of the Department. These farms are visited by large numbers of farmers who by this means acquire an interest in the crops and some knowledge concerning their cultivation and utilization. In other words, new and valuable crops are being rapidly introduced into many sections of the country where greater diversification of crops is needed.

WILD HAY.

In 1899, 15,457,000 acres of wild grasses were cut for hay in this country. During the present season the grasses thus utilized have been studied with a view to ascertaining their relative agricultural value. Much important information has been gained, and some of these grasses have been found which possess characteristics that will enable us to bring them into cultivation, particularly in the arid and semiarid regions of the West. We are now gathering considerable seed of four or five of the most important, with a view to introducing them on cultivated land.

LEGUMINOUS CROPS.

One of the most important movements which has occurred in American agriculture is now in progress. It is the general introduction of alfalfa as a hay and pasture crop. During the present season good crops of alfalfa have been grown by our experimenters in almost every State in the Union.

Other leguminous crops are receiving a large share of attention. The Department has secured some seventy-five varieties of soy beans, and has grown them for two seasons with a view to finding varieties adapted to different climatic conditions. Within another year we shall be ready to begin the introduction of a number of the best varieties. Varieties have been found adapted to practically all parts of the country.

The cowpea continues to receive a large share of attention in our demonstration work. We are attempting to add largely to the acreage of this important crop in the cotton States. Varieties have been secured adapted to the Northern States as well.

A number of new legumes have been secured and are being propagated with a view to obtaining seed for introduction work in the near future.

RANGE INVESTIGATIONS.

Fifty-eight square miles of typical range land near Tucson, Ariz., have been put under fence during the year. Careful studies are being carried forward on this area, with a view to determining the result of protecting the now exhausted range from the depredations of stock. In the State of Washington we have demonstrated that the mountain

ranges may be restocked with grasses by using seed. Our investigations have also shown that the ranges in that section may be so handled as to largely increase their productive capacity; but in order to do this it is believed to be demonstrated that it is necessary for those who graze stock upon the ranges to control a definite area of range land.

SOIL AND SAND BINDERS.

A representative of the office of Grass and Forage Plant Investigations during the past season studied the extensive work on soil and sand binding that has been done in Europe. After two hundred years of experience in Europe it has been shown that drifting sand can be controlled. Work has been undertaken with this end in view at The Dalles, Oreg.; Astoria, Oreg.; on the eastern shore of Lake Michigan, and at several points on the Atlantic coast. In many places these drifting sands have covered up extensive areas of valuable farm land. In other cases they have encroached upon cities, and have even buried portions of them. In still others they have interfered seriously with railroad traffic.

CASSAVA.

Studies by agents of the Department have shown that the cassava crop is of great importance in the region adjacent to the Gulf as a feed for cattle and hogs. This crop has been grown in a desultory way in Florida for nearly half a century. The value of the crop has been known, but there have been two principal difficulties in the way of its cultivation. The first is that it is propagated from sections of the stalk, and these are very difficult to keep during the winter season. Growers have now been found who have apparently solved this difficulty, and a number of the best methods of keeping the seed stems will be tested on a large scale by the Department this winter.

The other difficulty relates to securing a stand. It has been demonstrated that it is practicable to sprout the cuttings in hotbeds and transplant them into the field afterwards, and in this manner to secure almost a perfect stand, thus doubling the average yield. Arrangements have been made to give this method a thorough trial next season. The importance of this work will be better understood when it is known that an acre of cassava yields as much food value as 8 to 10 acres of corn in the section where cassava is grown.

POMOLOGICAL INVESTIGATIONS.

In no other country in the world has fruit culture attained such large proportions as in the United States. Favored with a broad range of latitude, affording great variety of soil and climatic conditions, there are but few fruits of the temperate zone that are not now produced on a commercial scale within our borders. The track of the pioneer has everywhere been marked by the planting of orchards and vineyards.

In certain regions the production of fruits and their products has become the chief feature of agricultural life, and the welfare of the people therein is largely dependent upon the successful production, harvest, and sale of such fruits as the peach, apple, grape, orange, and several others. In all such regions the question of adaptability of types and varieties to soil and climatic conditions, and their suitability for the purposes for which they are to be used, becomes a most important one from the economic standpoint. Unlike the grower of grain or vegetables, the orchardist or vineyardist must invest years of time and labor, in addition to the original outlay for land and stock for planting, before his plantation attains sufficient age to begin to yield a return. It is therefore of the utmost importance that there should be accessible to him information regarding the distinct characteristics of fruit varieties, their particular requirements as to soils and climate, their times of ripening, and suitability for particular uses, such as shipment to distant markets, use in canning, drying, preserving, etc. One of the important duties of the Pomologist and the force engaged under him is to accumulate and interpret the results of individual experience along these lines throughout the country, so that it may be furnished to the interested public in convenient form for their guidance in fruit culture.

FRUIT MARKETING AND STORAGE.

Some of the most pressing and important questions relating to the fruit industry are those that grow out of the present tendency in horticulture to produce each fruit in that section where it can be grown best or to mature at a certain desired time, even though that locality be thousands of miles from the market where the product will be consumed. These problems may be characterized as those relating to marketing and storage. Their solution lies at the foundation of development of important export trade in fruits, and is hardly of less moment in connection with that portion of the crop which is used at home.

Some of the questions involved are with regard to the best methods of harvesting, grading, packing, and transporting each fruit, with reference to accomplishing its safe and economical delivery at its desired destination; also with regard to the suitability of the variety, packing and package, to the needs of the consumers, who are to be the purchasers if profitable trade is to be built up. These questions are of especial importance in connection with the export trade, and a series of experimental shipments is being made to obtain light upon these points.

Through these experiments, which have been conducted on a commercial scale, chiefly through the ordinary channels of trade, it has been demonstrated that the Bartlett pear, a choice but perishable

fruit, of which there is frequently so large a surplus in our Eastern States as to depress prices to a point where the producer receives little return for his labor, can be successfully and profitably shipped in refrigeration across the Atlantic and sold at prices that yield a good net advance over home value.

Elberta peaches from Georgia and Connecticut, and several varieties of summer apples from Delaware, can be landed in London in prime condition when the climatic conditions at time of shipment are favorable; and they are likely to meet with good demand at fair prices.

It is gratifying to note that commercial shippers are following the work of the Department along these lines with keen interest, and preparing to make extensive shipments of such fruits as are found capable of profitable handling in this way.

A notable event of the year was the inauguration of direct shipments of American winter apples to Paris through the instrumentality of the Department. As was anticipated from previous investigations made by the Department, russet varieties were found to have preference to red apples in that market, and where sound and free from blemish were in good demand at high prices. The opportunity to develop trade in this line appears excellent.

Numerous and comprehensive tests of other fruits are under way, and may be expected to yield decisive results in due time.

The storage of fruits at low temperatures to retard their ripening and decay for a sufficient time to permit them to be handled to the mutual advantage of the grower and the consumer has assumed very large proportions in this country, chiefly within the past decade. It has been demonstrated beyond question that all fruits destined for preservation in cold storage should be stored quickly after removal from the tree; a uniform temperature of 32° retards the ripening processes of apples, pears, and peaches more than higher temperatures, without any noticeable injurious effect upon their flavor. It has also been demonstrated that certain delicate fruits, like the Bartlett pear and the peach, which ripen in hot weather, require quick cooling after entering the storage room, and that this can probably best be accomplished by storing in small rather than large packages.

STUDIES OF GRAPES AND GRAPE GROWING.

In addition to continuing the work of thoroughly testing the large number of varieties of European table grapes in the cooperative experimental vineyards in North Carolina and Florida, a comprehensive investigation of certain viticultural problems relating to the vine industry of the Pacific coast has been started.

The rapid and extensive development of grape culture in California is one of the most striking features of our fruit industry. Based

almost exclusively upon the European grape species, as it is, vineyard methods modeled after those of the Old World are more successful there than in the vineyard regions of the Eastern States, where the native species of grape are the main dependence. The fertile soil and favorable climatic conditions in California have in general resulted in large yields and good profits to the grower.

Certain serious difficulties have arisen, however, which require immediate attention. Among these may be mentioned the general infestation of the important vineyard sections with the destructive Phylloxera, which preys upon the roots of the European grape. The general principles of the method of combating this insect through the use of resistant stocks have been demonstrated by entomologists, but the practical application of these involves many important vineyard problems which properly fall to the viticulturist. Among the most important of these is the relative adaptability of the known resistant stocks to the leading vineyard soil types and the congeniality of the principal commercial varieties of foreign grapes to these resistant stocks.

In cooperation with the California Agricultural Experiment Station and the office of Seed and Plant Introduction of the Bureau, experimental vineyards have been established at Fresno and Oakville in connection with this work.

WORK AT THE ARLINGTON FARM.

APPLES AND PEACHES IN NURSERY.

There are now growing in the nursery some 400 varieties of apples, the scions of which have been secured from bearing trees known to be true to name. The peach list embraces 150 sorts chosen with equal care. These collections have been carefully selected to represent the sorts now commercially grown in the several important apple-growing regions of the United States, together with a carefully chosen collection of varieties which show promise of becoming additions to the commercial list.

The aim of these plantations is that they shall form a basis for the comparative study of varieties when grown under like conditions, in order that the influence of climate on horticultural varieties may be observed, to afford basis for taxonomic studies upon cultivated varieties, and to furnish fresh fruits for comparative studies and identification of varieties, as well as material for further extending physiological studies upon the keeping of fresh fruits in artificial storage.

ORNAMENTAL TREES IN NURSERY.

The nursery at present contains several thousand seedling oaks, ashes, and maples, which have been grown from seeds gathered from

trees of note in the District of Columbia. These trees, if sent to schools, parks, and other outdoor improvement organizations of the country, will prove objects of interest, and will be appreciated because of the sentiment attaching to the place of their origin.

EXPERIMENTAL FRUIT PLANTATION.

A further fruit plantation upon the Arlington Farm, consisting of 1,000 trees, is designed as a basis for studying the physiological action of the various insecticides and fungicides upon the health and longevity of trees.

CRANBERRY PLANTATION.

A small typical cranberry plantation is being established upon the farm, in order to determine the adaptability of the plant to the climate and the lowlands lying along the streams of eastern Virginia and Maryland. There are many thousands of acres of land now lying idle that might be made remunerative by the introduction of this crop if it proves suited to the conditions.

ARBORETUM.

An area of some 30 acres adjacent to the buildings which are in course of construction upon the farm is being prepared as an arboretum, in which will be arranged in an instructive, as well as artistic, manner all the native and exotic trees and shrubs which can be grown here. One of the chief reasons for beginning this line of work upon the Arlington Farm is that in this latitude there is an overlapping of the Northern and Southern floras of the United States, which allows the successful growing of a much greater range of species than can be cultivated either farther north or south.

THE POTOMAC FLATS TESTING GARDEN.

SWEET POTATOES.

An extensive variety collection of sweet potatoes is being grown on the Potomac Flats area. In fact, all of the commercial forms and types of the plant known have been assembled and are being raised, both upon the sandy soil of the flats and upon the clay loam of the Arlington Farm; also at one station in Alabama, one in New York, and three in Ohio, selected to cover the glacial drift soil of Ohio, the glacial drift of New York, and the prairie soil and alluvial river deposit soil of Ohio. The variety collection is designed to afford an opportunity for taxonomic studies, while the growing of the crop upon various soils is intended to give an idea of the influence of soil conditions upon the development and culinary properties of the root.

CELERY.

Celery is receiving special attention. It is being grown under various soil and moisture conditions, from various dates of seed sowing, and under the influence of various commercial fertilizers, in order to learn, if possible, the particular factor in environment which determines pithiness—if it is a question of environment rather than an inherited tendency transmitted by the seed of certain strains and varieties.

EFFECTS OF SHADE ON CROPS.

The physiological effects of shade are so marked and are of such commercial value that the horticultural work of the Department will be extended to cover a test of all truck crops which offer any advantages from being grown in shade. The work of the present season has been largely confined to the use of cloth and slat shades upon celery, cauliflower, lettuce, cucumbers, and radishes. As rapidly as the facilities of the Department will permit, all the truck plants which are grown for leaf production will be submitted to the influence of shade. In connection with this work the atmospheric and soil conditions will be carefully studied, with the hope that the reason why plants behave in a different manner under shade from what they do in the open may be determined.

BEET-SUGAR INDUSTRY.

The beet-sugar industry is developing satisfactorily. In 1896 29,220 tons were made; one year ago 220,000 tons were made. Careful estimates put the crop now being worked up at 260,000 tons. This is a more rapid development than has taken place in sugar making with new conditions in any other country. The future of the crop depends upon the adoption of economic methods in field and factory. The growing of seed in the United States of a superior quality is assured, which will result in much richer beets and better yields than from imported seed that is never first class. Heavier tonnage per acre will come from better farming, and more economy from intelligent disposition of the by-products. The industry is well established.

TEA-CULTURE INVESTIGATIONS.

During the year the work on growing tea has been continued at Summerville, S. C., and a new station has been put in operation at Pierce, Tex. At Summerville further work has been carried on in the testing of new varieties, new machinery, and new factory methods. The work at this point has now reached a state where more attention can be given to the improvement of the teas after being harvested. To this end a number of physiological and chemical studies have been

made of the product at different stages with a view to improving methods of curing and increasing the flavors and aromas of the teas. The new methods and apparatus introduced by Dr. Charles U. Shepard, and used in the manufacture of green teas, have proved most satisfactory. Experiments have been carried on quite successfully in the preparation of tea tablets. These tablets are prepared in a special machine of great power, the result being a firm, polished product, which readily falls apart in boiling water. Improvements have been made in the matter of polishing and finishing the teas, all of which will add value to the American product. Despite the fact that the season has been a very unsatisfactory one for a number of reasons, the yield of tea will probably approximate 9,000 pounds, or about what was raised last year. A favorable season would have given a much larger production.

At Pierce, Tex., cooperative arrangements have been made with Mr. A. P. Borden, who has placed at the disposal of the Department a large tract of land suitable for tea growing, and has arranged to provide buildings and a portion of the labor. The Department has an experienced man located at this station, and is making preparations to put out at least 50 acres of tea the present autumn. It is planned to set out at Pierce at least 100 acres and extend the plantation as the funds permit. The labor question plays an important part in this work, but it is believed that conditions are such in southern Texas that proper labor can be secured without difficulty. Altogether, the tea investigations are in quite a satisfactory condition.

FARM MANAGEMENT.

In my last report I pointed out the work the Department was inaugurating in the matter of farm management. It was there shown that efforts were being made to bring together certain facts relative to the methods of managing farms in certain typical sections of the country, the object being to use this information in improving agricultural conditions where the best processes had not been followed. There is a great deal of valuable work to do in this connection, and there is no question that systematic studies along this line will greatly aid in the advancement of agriculture. In every community and in every section there will be found farmers who are much more successful than others. There are reasons for this, and it is these reasons that the Department is endeavoring to determine, so as to point the way for others to follow along the same successful lines.

Closely associated with this work are the demonstration experiments which the Bureau of Plant Industry is conducting. These have for their object the demonstration of the value of certain crops and certain methods over those which may be in use or existing at the present time. As an example of this kind of work, may be cited what is

being accomplished in the introduction of alfalfa and other important forage crops into the South and sections of the country where such crops have not already been grown.

BUREAU OF FORESTRY.

The object for which the Bureau of Forestry exists is first of all to secure the highest permanent usefulness of the forests in the present and future interests of the country. Among our great industries, the lumber industry now stands fourth in importance.

Lumbering of the forests now standing must go on to supply immediate needs. This has made it necessary to find how to make conservative lumbering profitable, and the great danger has been that the rising price and growing scarcity of lumber would not of themselves bring this about until none but inferior forests should be left on which to practice forest management.

It is a safe assertion, that the lumber interests of the United States recognize to-day as never before that forestry has for them a practical commercial value; that the way is in many cases already open to them to consider conservative lumbering as a definite business proposition; and that this condition has been brought about entirely by the efforts of the Bureau of Forestry to deal with the concrete facts of a problem of National importance. The evidence of its success is not only the cases in which lumber companies have already begun to put into operation its plans, prescribing for particular tracts how to lumber with reference to future production, nor the applications which have been made for similar advice elsewhere, but to the surprising interest in the subject which has lately been evidenced among lumbermen generally.

It is greatly to be hoped that the Bureau of Forestry may not be compelled to let slip this opportunity for an important public service by inability to answer the demands which will be made upon it. Experience has shown its capacity to do this work. The wide knowledge of forest conditions and of methods of operation which it has gathered, and the organization which it has developed, fit it to undertake new problems with a probability of success which can be looked for in no other quarter. In so vast a country as ours, and under forest and economic conditions of such variety, the task of revolutionizing the long-established methods of an industry like the lumber business is one of enormous difficulty. On the ability of the Bureau of Forestry to demonstrate, as fast as opportunity permits, that it is good business for lumbermen to conduct operations with reference to future crops, depends in large measure the success or failure of the attempt to preserve what should be our chief sources of timber supply. The proper equipment of the Bureau for this work is nothing

less than a National duty, and I have recommended that the annual appropriation for its use be substantially increased.

ADVANTAGES OF COOPERATION WITH PRIVATE OWNERS.

In cooperating with private owners the Bureau is not expending public money to benefit private interests. Scientific forestry—that is, enlightened management based on an accurate forecast of what a forest can be made to produce in the future—is impossible without full knowledge of all the forces, natural and artificial, which affect its productiveness. This involves a careful study of lumbering methods on the one hand and of the forest itself on the other. The Bureau has now in its possession as the result of this cooperative work the tabulated results of studies in many States from Maine to California and from Florida to Washington, representing a total of recorded individual measurements in the forest, the number of which would mount to scores of millions.

This vast mass of material has been gathered mainly at the private expense of the owners, who have received the expert assistance of the Bureau. Its possession makes it possible continually to enlarge the field of forestry. It has been secured by making its accumulation go hand in hand with practical results. Every working plan prepared and put in operation has meant both the preservation of a source of National wealth and an addition to the knowledge necessary for the wise use of the public as well as the private forests of the land.

Two considerations must be urged in connection with present conditions. The first is that cooperation is now supplying the Bureau with what it needs for Government work at a less cost than would be required to secure the same result independently. The second is that the speedy introduction of management on private lands is a matter of pressing importance. Forest preservation is necessary in the interest of the public welfare. Forest destruction on a large scale is now in progress. It can be checked only by showing that it is possible to use the forests without destroying them. The Bureau of Forestry is doing this, and there is no other agency which can do it. If the Bureau does not put forth every endeavor to introduce conservative management among private owners, the public interest will suffer.

While it is true that hitherto virtually everything that has been done in this country to introduce conservative management as a paying business has been done by the Bureau, it is far from my wish that the Bureau should continue to control operations for private owners any longer than there is a clear and imperative need. It has already entered on the policy of detaching from its staff competent men to take charge of private operations when called upon to do so, in spite of the fact that it needs the services in its own work of all the trained

foresters it has as yet been able to secure. The Government service, however, is the natural goal toward which most ambitious students of forestry will strive because of the superior opportunities of training which it affords.

SCIENTIFIC INVESTIGATION OF FOREST PROBLEMS.

There is danger that the attention which the work of the Bureau in promoting the actual management of forests naturally receives may obscure the importance of the investigations which it is conducting along other lines. These investigations are largely scientific in scope and method, but always entirely practical in purpose and outcome. The Bureau is the recognized source of information for the country on all forest subjects. The volume of its great and growing correspondence due to this is one evidence of its usefulness. It is conducting experiments along lines which have received the enthusiastic approval of engineers, constructors, and the like, to determine the strength of timbers. It is discovering how to treat cheap woods with preservatives so as to make it commercially practicable to substitute them for more expensive kinds, thus virtually adding new sources of valuable supply. It has inaugurated a new method of gathering crude turpentine which has revolutionized within a single year the naval stores industry of the United States, with an annual output of $13,000,000 worth of turpentine and rosin, whereby the yield of turpentine is nearly doubled with practically the same expense for labor, and the life of the tree which yields the turpentine is greatly prolonged.

In the fall of 1902 this new system had been experimentally in commercial use for a single season on the tract of one operator in Georgia. To-day the men who conduct three-fourths of the operations in the whole Southern pine belt have adopted it, or are waiting to adopt it as soon as their orders for the necessary apparatus can be filled.

FOREST MANAGEMENT.

While the growing willingness of the private owners, in whose hands are the great bulk of the forests of the country, to inquire into the possibilities of forestry in connection with their holdings has opened an opportunity for educational work, the value of which it is hardly possible to overstate, a larger proportion of the energies of the Bureau has been given during the past year to introducing forestry on public lands than ever before.

In accordance with the provisions of the so-called Morris bill, selection has been made and approved of 104,159 acres out of a total of 225,000 acres of land in the Chippewa Indian reservations in northern Minnesota, which will constitute the Minnesota National Forest

Reserve. Official announcement of the second selection will soon be made. Selection of ten sections to be reserved from sale and settlement has also been made and approved. Volume tables and estimates of the total stand of the forest have been prepared, upon which will be based recommendations for the reservation from lumbering of 5 per cent of the timber for seed trees, as the act provides. Trees which will not be cut when the forest is lumbered have been marked on more than 6,000 acres, and rules which will control the lumbering have been prepared and have been approved by the Secretary of the Interior.

A working plan for the tract of the United States Military Academy at West Point was prepared at the request of the Secretary of War. The forest, which consists of hardwood sprouts, is in poor condition, the result of numerous fires and injudicious cutting. The plan is accompanied by forest maps, which show the location and area of the various types of forest, and provides for fire protection and for such improvement cuttings as will again put the forest in a sound and healthy condition. This plan is now being put into effect under the supervision of the Bureau of Forestry.

At the request of the Secretary of the Interior working plans were prepared for three Indian reservations in Wisconsin, which include recommendations for their protection from fire and rules under which they shall be lumbered without unnecessary damage to the forest.

ADVICE FOR PRIVATE OWNERS.

Ninety-four applications for assistance in managing forest lands were made by private owners. Of these applications, 37 were for timber tracts and 57 for wood lots. Since the Bureau put into effect its cooperative scheme of assisting private owners, applications have been received for advice in the management of 5,656,171 acres. Farmers and other private owners of small tracts of woodland throughout the Northeast, the Middle West, and the South Atlantic States have applied in increasing numbers for the assistance of the Bureau in the management of their tracts. Fifty-eight working plans for wood lots were prepared last year.

STUDIES AND WORKING PLANS.

Field studies of five large timber tracts were made as follows: On 39,000 acres in Berkeley County, S. C.; on 2,321 acres on the Susquehanna River above Harrisburg, Pa.; on 16,000 acres in Mitchell, Caldwell, and Watauga counties, N. C.; on a Longleaf Pine forest in southeastern Texas, involving field work on 300,000 acres, which occupied 35 men for four months; and on 125,000 acres in northwestern Maine, which occupied 32 men for three and a half months.

Working plans are in preparation for the following tracts: A forest of 25,000 acres in Sullivan County, N. H.; a forest of 50,000 acres in West Virginia; and a forest of 3,000 acres in Grafton County, N. H.

The forest of R. C. Neal, near Harrisburg, Pa., for which a working plan was prepared last year, is now under conservative forest management. Two field assistants of the Bureau are supervising the lumbering operations of a large company in Newton and Jasper counties, Tex. The working plan for the United States Military Academy at West Point is now in operation. Twenty-seven wood lots in the Northeast and South Atlantic States are being managed in accordance with the recommendations of the Bureau. The first selection of the Minnesota National Forest Reserve, consisting of 104,459 acres, is now under the Bureau's supervision. In addition to these lands, 679,194 acres of private lands and 106,759 acres of public lands not included in forest reserves are under forest management.

The interest which large railroad companies have recently exhibited in the practice of forestry is one of the most encouraging developments of the year. Many of them have made application to the Bureau for its cooperation in studies whose results would determine the advisability of the purchase and management of forest lands for the production of railroad ties and other timbers. Forest work for railroads offers very great opportunities for useful work.

Cooperative studies of State forest conditions, in which the States shared in the expense of the work, were made for Maine, New Hampshire, and California. In Maine the forests of Piscataquis County, south of Moosehead Lake, were studied. The results of the work were presented in the Fourth Report of the Forest Commissioner of that State. In New Hampshire a study of the forests of the entire State was begun, with the purpose of determining the methods by which they may best be preserved. In California the work was directed toward the making of a forest map of the State, the determination of practical modifications in lumbering methods, and of the effects of grazing and fire, and other matters entering into the determination of a State forest policy.

Studies were made of the Sugar Pine in California, the Lodgepole Pine in Montana, commercial hard woods in West Virginia, North Carolina, Tennessee, and Kentucky, the Balsam in the Adirondacks, the Chestnut in southern Maryland, and the Red Pine in northern Minnesota.

The section of Forest Measurements, without increase of force, accomplished nearly twice as much work as in the previous year.

WORK FOR THE COMING YEAR.

The work of the section of Forest Management for the ensuing year includes more important undertakings than ever before. Technical problems involved in the management of the National forest reserves must be solved; the field work in Texas, in South Carolina, and in Alabama must be completed. Much work remains to be done

on wood lots for private owners. On the lands to be included in the Minnesota National Forest Reserve those trees must be marked which are to be reserved in the lumbering, and supervision of the lumbering operations must be exercised by the Bureau. The study of the forests of California and of New Hampshire remains to be completed, and a study of Vermont forests will be undertaken. Commercial tree studies will be made in Maine, Minnesota, and the Southern States.

FOREST INVESTIGATION.

A notable accomplishment in the South during the year has been the extensive introduction of the cup and gutter system of extracting turpentine. This system, invented by Dr. Charles H. Herty, working under the Bureau's direction, although in operation only a year, is rapidly replacing the old, destructive system of boxing trees. Its great superiority is due to the fact that it is far less destructive than the box and that it yields at least 40 per cent more turpentine.

INVESTIGATIONS IN 1903.

Forest investigations were carried on in the following States:

In Maryland, a study of the distribution of the forests of St. Mary, Prince George, and Kent counties, in cooperation with the State Geological Survey.

In Texas, a study of the forest growth of the Edwards Plateau and its influence on stream flow.

In Missouri, a study of the swamp forests, including such timbers as Bald Cypress, and Red, Black, and Cotton gums.

In California, a study of the Tan-bark Oak in connection with the tan-bark industry.

In Ohio, Iowa, Michigan, and Montana, a study of forest distribution.

An investigation of the cedar-shingle industry was carried on in the Pacific Northwest, which included a study of the supplies of shingle cedar, the rate of consumption, etc.

The dendro-chemical laboratory, which was conducted in cooperation with the Bureau of Chemistry, obtained much valuable information in its study of gums and resins, the production of tannins, the use of different woods for pulp manufacture, the effects of poisonous chemicals on the life of trees, and the detection of adulterants in turpentine.

The life history of various insects harmful to trees in the East, South, and West was studied by the Division of Entomology in cooperation with the Bureau. It has been estimated that insects destroy every year $100,000,000 worth of timber. Experiments were carried on in methods of lessening this great damage.

Studies were made of the basket-willow industry and of the maple-sugar industry, and bulletins on both subjects are now in preparation.

WORK IN PROSPECT.

Work in forest investigations for the ensuing year will include—

Bulletins containing descriptions of the trees of the Northeastern, Southeastern, Rocky Mountain, Southwestern, and Pacific slope regions.

An attempt to clear up the confusion in the common names of trees.

A study of forest distribution in two counties of Maryland.

Special studies of forest distribution in Missouri and Arkansas.

A study of the Big Tree of California; of the acacias of the Southwest; and of the uses, structure, and characteristics of various American timbers.

Further experiments in turpentine orcharding under the cup and gutter system, to determine the minimum wound which it is necessary to inflict on the tree, the forest conditions which make for the highest productiveness, and the like.

A forest exhibit at the World's Fair, St. Louis.

FOREST EXTENSION.

Plans for tree planting were made for 68 applicants in 29 States. These plans, which involved the examination of 40,557 acres of land, were made in accordance with the cooperative plan inaugurated by the Bureau. Most of the plans were for farm wood lots of not more than 10 to 20 acres, but there were several notable exceptions. A plan was prepared for 108 acres on the Presidio Military Reservation of San Francisco. Planting plans were prepared for the grounds of the State institutions of North Dakota, at the request of Governor White. Other plans were prepared for farmers in the prairie regions along the Fort Worth and Denver City Railroad at the request of that company, and more than 600,000 trees were set out.

A planting plan was prepared for 640 acres in Cullman County, Ala., formerly covered by Longleaf and Shortleaf Pine. It was recommended that Loblolly Pine and White Oak, Post Oak, and Chestnut be planted on the land.

Men applying for planting plans show everywhere a disposition to follow the recommendations of the Bureau. Planting plans previously made are being carried out with encouraging prospects of success.

Tree planting continues on the Dismal River Forest Reserve of Nebraska and the San Gabriel Forest Reserve of California. The boundaries of the Dismal River Reserve have been surveyed and marked. Eighty acres of bottom land adjoining the reserve have been fenced, and part of the land converted into a tree nursery with space for the growing of 2,000,000 plants. Many thousands of Western

Yellow Pine and Jack Pine seedlings were collected in the Black Hills and in Minnesota for planting in the Dismal River Reserve. On the San Gabriel Reserve much experimental planting was done on widely scattered areas. The planting was done mostly with pine seeds in seed spots. The total cost averaged $7.41 per acre.

The natural reproduction of deficient forests has been studied among the hardwoods of Oklahoma, the Western Yellow Pine on the Prescott Reserve of Arizona, and the White Pine on the abandoned fields and pastures of New England.

A very important branch of the Bureau's work is the study of forest fires, with a view to discovering practicable means of reducing the immense losses due to this cause. The year covered by the present report was characterized by fires of extraordinary severity both in the East and in the West. The investigation of those which occurred in the East in the spring and early summer of 1903, however, was not begun in time to fall within the scope of the present report. The great forest fires of September, 1902, in Washington and Oregon were the subject of a special investigation by the Bureau, which discovered a total loss estimated at $12,767,100. The Bureau's investigation showed that most of the destruction was due to carelessness and might easily have been avoided. Forest fires were studied also in Georgia, Florida, and the Lake States, with a view to discovering their causes, methods of prevention, and the total amount of damage they do.

Examinations of the Atlantic Coast and Columbia River sand dunes were made in order that methods of tree planting might be discovered to restrain the encroachments of the shifting sands. Tree-planting plans for sand-dune regions on the Atlantic coast are in preparation, and a strip of sand-dune land in Oregon has been withdrawn for experiment.

Work for the ensuing year will include:

A continuation of cooperative work in tree planting among private owners.

Tree planting on Pikes Peak, Wichita, Prescott, and San Bernardino forest reserves.

Improvement of natural reproduction on Pikes Peak Reserve and on lands in northern New Mexico.

Extension of the timber belts of Kansas.

A study of the methods of restocking cut-over pine lands in southern Michigan.

A continuation of the study of second-growth White Pine in New England.

A cooperative study with the State of California in improving the stands of timber.

A study of the Eucalypts.

The suppression of forest fires and the reclamation of shifting sands will continue to receive the attention of the Bureau.

FOREST PRODUCTS.

A work of great scope and importance undertaken by the Bureau is the determination of the strength and durability of the merchantable timbers of the United States. The investigation consists of tests of timbers performed in cooperation with the Bureau of Chemistry. The work is directed toward the solution of practical problems of interest to engineers, and has been approved by many prominent engineers, manufacturers, and lumbermen. These tests are being conducted in laboratories at Washington, New Haven, Conn., and Berkeley, Cal., on Red Fir, Western Hemlock, and Longleaf and Loblolly Pine.

Wood preservation forms a most valuable feature of the work of the Bureau. Railroad companies have eagerly followed the results of this work, since it has so important a bearing on their interests. The work consists in experiments in methods of seasoning and preserving construction, railroad, and other timbers so as to increase their strength and their lasting powers. A special feature of the work which gives great promise of success is the experiments with cheap substitutes for valuable woods used for railroad ties. Such work has been done with the Lodgepole Pine in Montana, with gums, birches, and inferior oaks in Pennsylvania, Kentucky, Arkansas, and Mississippi, and with Loblolly and Shortleaf Pine in Texas. Methods of seasoning Chestnut poles were studies in cooperation with the American Telegraph and Telephone Company.

Examinations and reports dealing with technical problems in the management of forest reserves have been made for reserves in Utah, California, Oregon, and New Mexico. Twenty-nine agents of the Bureau this summer examined more than 20,000,000 acres proposed as forest reserves in the Rocky Mountain and Pacific coast States.

FORESTRY RECORDS.

Extensive improvements have been made in the equipment of the forest library. Many books, pamphlets, and clippings have been added, and the whole library has been completely classified and indexed. The collection of photographs has been increased by 3,417 views, taken in 41 States and Territories and in many foreign countries. The mailing list of the Bureau has increased by 75 per cent. Eighteen new publications were sent out, of which 237,000 copies were printed. Besides these, 23 press bulletins and reprints of 14 publications were issued.

BUREAU OF CHEMISTRY.

NEW INVESTIGATIONS.

EFFECT OF PRESERVATIVES AND COLORING MATTER UPON HEALTH.

As numerous experts of high character have declared both for and against the wholesomeness of many common food preservatives, and as the law authorizes the Secretary of the Treasury to exclude from the country food products to which any injurious substance has been added, the necessity for an investigation of these differences of opinion and the establishment of a wise and just conclusion in regard to them is apparent. To this end, as well as for the information of the public, an elaborate series of experiments has been inaugurated. It is evident, in view of the work previously done in this line, that neither mere theorizing on the chemical and physical properties of preservatives and coloring matter nor experiments upon other animals than man can lead to definite results. With this in mind an experiment was developed as follows:

Twelve young men, who responded to a request for volunteers, pledged themselves to use no other food or drink than that provided for them, with the exception of water, any water not used at the table to be measured and reported daily; to continue to be for at least six months members of the "hygienic table," and during this time to observe implicitly all rules as to diet, exercise, smoking, etc., laid down for them by the Chemist.

A period of rest was effected by placing six of the men at the observation table and the other six at the recreation table alternately throughout the period of seven months. Each experimental period varied from thirty to forty days, and was divided into a "fore period" of ten days, during which a standard ration for each man was determined; a "middle period" of from ten to fifteen days, during which time each member ate the ration previously determined, together with the added preservatives, which in this experiment were borax and boracic acid; and an "after period" in which the same ration was continued, but the preservative withdrawn, the object being to restore the body to its normal weight in case it had been disturbed by the preservative.

A daily record was made on blanks furnished each member of the table of the following data: Weight, pulse, temperature, all data connected with the income and outgo of the food, and an account of all the foods taken and the meals at which they were eaten.

By analysis it was possible to determine just what part of the food was consumed in the production of heat and energy within the system, provided the weight remained constant. Furthermore, any failure on the part of the individual to observe the pledge to partake of no food or drink except what was served at the hygienic table would have been at once disclosed by a disturbance of the balance sheet.

Such in brief was the nature of the experiment conducted. The mass of analytical data obtained is now in the hands of the calculators, and these data, together with such conclusions as an unprejudiced judgment would approve, will shortly be published. The recording of the facts as they occurred and the tabulation of the figures in the most scientific manner possible will present to experts a basis for conclusions. The experiment is to be continued, taking up the most important preservatives in turn, salicylic acid being the next to be considered.

INSPECTION OF IMPORTED FOODS.

Looking to the enforcement of the pure-food law, enacted March 3, 1903, and going into effect July 1 following, preliminary arrangements were made with the Secretary of the Treasury and the Secretary of State by which their active cooperation was secured. The Secretary of State issued directions to the United States consuls that special declarations concerning imported foods be made and forwarded to the Secretary of Agriculture, and through the Treasury Department the collectors of customs at the leading ports in the United States were instructed as to the steps necessary to be taken in sampling such cargoes as might be detained for examination and the reshipping or destruction of such shipments as might, upon analysis, be excluded from the country under the terms of the act.

TABLE SIRUP FROM ORDINARY SUGAR-PRODUCING PLANTS.

The investigations previously made in the Division of Chemistry, and the testimony submitted before the committees of the House and Senate charged with the investigation of the adulteration of food products, show that table sirups are generally adulterated in a degree corresponding to the price paid for them. Glucose is the material commonly used for the basis of this product. In this way the price of the genuine articles has been depressed to a point which renders their profitable production problematic. To combat this condition an investigation has been instituted to study the methods in vogue for the manufacture of table sirups, to ascertain how the product can be improved, and to conduct experimental work in the growing and fertilizing of sugar cane to determine methods for securing the highest financial returns. An elaborate fertilizer experiment was conducted on the farm of Mr. W. B. Roddenbery, at Cairo, Ga., from which practical results of a valuable nature were obtained and reported in Bulletin No. 75, Bureau of Chemistry.

The manufacturing data, obtained largely at the factory of J. T. Wells, Guyton, Ga., will be published in a separate bulletin when the additional experimental factory work now going on at Waycross, Ga., is completed.

COLLABORATIVE WORK WITH EXECUTIVE DEPARTMENTS.

The collaboration authorized by Congress between the Bureau of Chemistry and such Departments of the Government as may apply to the Secretary of Agriculture for chemical analyses has extended until it includes almost every branch of the service, the most extensive work having been conducted in connection with the Treasury Department. This collaboration included the sugar tests made on samples received daily from the appraisers' laboratories at New York, Boston, and Philadelphia, which comparative tests, extending as they have over a period of three years, have been productive of the most useful results in eliminating wide differences existing in the polarizations made at the ports named.

Other examinations made for the Treasury Department include an investigation of the percentage of ethyl alcohol in certain fusel oils imported into the country; an examination of the natural content of sugar in pineapples imported from different parts of the world; and the analysis of samples of ice and water intended for drinking purposes in the Bureau of Engraving and Printing.

Examples of cooperative work with other Departments are examinations of coal for the National Hospital for the Insane, at Washington, D. C., and paper for the Geological Survey, made at the request of the Secretary of the Interior; the examination of beverages offered for sale in Indian Territory, made on the request of the Attorney-General; samples of glue offered on competitive bids to the Government Printing Office; and a large amount of miscellaneous work for the Post-Office Department, including examinations of paper, ink, and stamps.

It is evident that work of this character, and especially such part of it as relates to the awarding of contracts, gains in uniformity and authority by emanating from one laboratory, and at the same time is more economically performed. The appreciation of this fact is seen in the constantly increasing number of requests received from other Departments for such work.

WORK OF THE LABORATORIES.

THE FOOD LABORATORY.

Upon this laboratory has devolved the greater part of the analytical work necessitated by the experiments with food preservatives, involving the examination of 5,500 samples, as well as all cooperative work on foods, such as pineapples, and the fermented beverage and fusel-oil investigations. In addition, an exhaustive study of olive oil and its adulterations has been completed; a study of the composition of apples with special reference to changes in composition during ripening under different methods of cold storage has been continued in collaboration

with the Pomologist of the Department; and 134 samples of fruit sirups and nonalcoholic beverages were secured in the open market and analyzed. The grape juices show a great improvement in the methods of preservation since the study made of them several years ago.

As heretofore, important work has been done in this laboratory in connection with the Association of Official Agricultural Chemists and the food chemists throughout the country in the investigation and comparison of methods for the analysis of foods. Two members of the staff have also done considerable work as associate referees on sugar for this association.

During the year a compilation of the pure-food laws of the various States was issued in five parts.

INSECTICIDE AND AGRICULTURAL WATER LABORATORY.

About 1,500 analyses were made in this laboratory, including the following lines of investigation: Mineral and irrigation waters; sanitary examinations of water; insecticides; the arsenic content of wall papers, furs, etc.; cattle foods; and toxicological examinations to determine whether bees are killed by poisons used in spraying. Most of these results, bearing directly as they do upon public health, either have been or will be reported in bulletin form. A portion of this work is performed in cooperation with the office of irrigation investigations and the Division of Entomology. Considerable work on methods of analysis for insecticides has been done by the chief of the laboratory as referee in the Association of Official Agricultural Chemists.

THE SUGAR LABORATORY.

In this laboratory the work on sugars for the Treasury Department was performed under the supervision of the Chief of Bureau. All analyses in connection with the cooperative experiments on sugar-producing plants (beets, sugar cane, and muskmelons) which have been conducted for several years in collaboration with various experiment stations are also made in the sugar laboratory. The total number of analyses reported was 1,744.

THE DAIRY LABORATORY.

Of the 1,056 analyses made in this laboratory, 807 were reported to the dairy division of the Bureau of Animal Industry, for which Bureau the chief of the laboratory served twice as a witness in a renovated butter case tried in New York State. The difficulty of distinguishing between butter produced by feeding cotton seed or cotton-seed meal and that to which foreign fats have been added, presented itself, and will receive special study during the coming year.

THE CONTRACTS LABORATORY.

The work performed in this laboratory included a large part of that referred to under collaborative work, and consisted mainly in the examination of samples submitted with bids for contracts to different branches of the Government, and in the development of qualitative and quantitative methods for the analysis of the same. Especially exhaustive examinations were made of khaki cloth for the Navy Department and 60 samples of ink for the Post-Office Department, a set of methods being determined in the progress of the latter work which were published as Circular 12, Bureau of Chemistry. Sample inks, prepared according to recipes developed in the laboratory, were sent to the Post-Office Department to be tested, and a set of standards established whereby to judge of an unknown ink.

THE ROAD-MATERIAL LABORATORY.

While the work of this laboratory has continued along the same general lines as in the past, its usefulness has been greatly extended, especially by the increase of its force.

The work of the chemist in charge included an investigation of the cause of the cementing power of rock dust, gravels, and clays, which involved many complete analyses and resulted satisfactorily. Other researches of immediate practical value have included a series of experiments on the burning and clinkering of clays, with a view to their use as road materials, and a study of the possibilities of increasing the binding power of materials by artificial means. During the coming year it is hoped that a thorough, practical test of burnt clays for country highways may be completed, as there are vast areas throughout our country where this is the only road material available, and the determination of the quality of clay adapted to this purpose would solve a great problem in road building.

Another important problem being studied in connection with such localities involves an elaborate series of experiments with mixtures of crude petroleum and asphaltum. The object of these experiments is to provide a binder surface for country roads which will place what would be practically an asphalt road within the reach of all rural districts, the cost of this mixture and its application being less than that of watering a macadam road.

Two new tests for determining the hardness and toughness of rock are to be adopted and reported on all routine samples, which it is believed will be of great assistance to road builders. These tests represent a new field of investigation and the machines for making them have been designed and are now in operation.

Other questions to receive special consideration are the testing of cement and concrete for road foundations, drains, and highway bridges,

and tests on paving brick. The general testing of rock for macadam roads will be continued.

A bulletin on the testing of road materials, giving a detailed account of the methods employed and the results obtained in this laboratory, is now in press.

THE DRUG LABORATORY.

This laboratory went into operation on March 1, 1903, and has already reported on 120 samples of drugs and chemicals. The work so far done on representative samples of drugs shows that some of these articles are of a very unsatisfactory character. A bulletin entitled Adulterated Drugs and Chemicals is about to be issued.

BUREAU OF SOILS.

PROGRESS AND COST OF THE SOIL SURVEY.

The work in which the Bureau of Soils is engaged forms an important link in the chain of duties devolving on the Department. It is fundamental in character, and as the survey and classification of the soil progresses the results are being more and more made use of by other offices of the Department, as well as by outside investigators and by our citizens.

Up to this time the distribution of the surveys has been influenced by the desire to gain as wide a knowledge as possible of the soils used in the most important agricultural industries of the country, and in this way the work has been scattered through all parts of the country. Thus studies have been made of Eastern and Western fruit districts, of sugar-beet lands, of the cotton and rice lands of the South, of the corn lands of the Central West, and the wheat lands of the Northwest and the Pacific coast, and of the soils of all the important tobacco districts.

One important purpose of the work is to provide data for the comparative study of more or less widely separated areas devoted to the cultivation of similar products, with a view to carrying the better practices of one area to the other, and of suggesting improvements in the methods used and changes in the kind of crops grown. It is one purpose of the work to show where old industries can be extended or new ones established, while the value of the reports and maps to those wishing to purchase lands for any specific purpose is too evident to need emphasis.

The statistics collected by the Bureau will be particularly important in the carrying on of immigration and colonization enterprises.

The area surveyed and mapped during the fiscal year was 23,293 square miles, or 14,907,520 acres, an area just about equal to the total area previously surveyed since the beginning of the work, four years ago.

This enlarged work has been accomplished in part by the organization of five new field parties on the 1st of March, made possible by increased appropriations by Congress, and partly by keeping the parties continuously in the field, moving to Southern areas in the winter. While considerable time was lost in some of the areas by reason of excessive rains, upon the whole this plan has worked well and has materially reduced the cost per square mile. The work has been carried on during the year in 63 areas in 34 States and Territories, as shown in the following tables:

Areas surveyed and mapped during fiscal year ended June 30, 1903, and the areas previously reported.

State or Territory.	Work during 1903.	Work previously reported.	Total.	
	Sq. miles.	*Sq. miles.*	*Sq. miles.*	*Acres.*
Alabama	1,223	.....	1,223	782,720
Arizona	108	503	611	391,040
Arkansas	251	.....	251	160,640
California	1,959	1,962	3,921	2,509,440
Colorado	1,195	150	1,345	860,800
Connecticut	273	245	518	331,520
Florida	548	.....	548	350,720
Georgia	186	571	757	484,480
Idaho	678	399	1,077	689,280
Illinois	2,241	1,356	3,592	2,298,880
Indiana	387	.....	387	247,680
Iowa	576	440	1,016	650,240
Kansas	.....	464	464	297,600
Kentucky	536	330	866	254,240
Louisiana	705	202	907	580,480
Maryland	463	2,147	2,610	1,670,400
Massachusetts	267	143	410	262,400
Michigan	30	828	858	549,120
Minnesota	233	.....	233	149,120
Mississippi	661	656	1,317	842,880
Missouri	751	168	919	588,160
Montana	.....	107	107	68,480
New Jersey	395	908	1,303	833,920
New Mexico	.....	129	129	82,560
New York	1,075	483	1,558	997,120
North Carolina	1,221	3,425	4,646	2,973,440
North Dakota	856	.....	856	547,840
Ohio	375	980	1,355	867,200
Oregon	382	.....	382	244,480
Pennsylvania	278	938	1,216	778,240
Porto Rico	.....	330	330	211,200
South Carolina	1,346	686	2,032	1,300,480
South Dakota	485	.....	485	310,400
Tennessee	.....	547	547	350,080
Texas	1,238	495	1,733	1,109,120
Utah	200	794	994	636,160
Virginia	1,171	1,604	2,775	1,776,000
Washington	51	459	510	326,400
Wisconsin	955	.....	955	611,200
Total	23,299	22,445	45,744	29,276,160

Cost of survey.

Cost of field work	$51,136.60
Supplies	1,901.59
Traveling expenses between areas	5,215.76
Other expenses	5,059.56
Total cost of soil survey	63,313.51
Paid by State organizations	1,748.35
Paid by Department of Agriculture	61,565.16
Area surveyed—square miles	23,299
Cost of work in field per square mile	$2.19
Transportation, supplies, and other expenses per square mile	$0.52
Total cost per square mile	$2.71
Cost to Department of Agriculture per square mile	$2.63

The cost of work in the field has increased from $1.83 per square mile, as reported last year, to $2.19 per square mile. This is due in part to increased salaries, necessitated by the fuller experience of the principal assistants, and in part to a large amount of rainy weather in the winter, which raised the cost in some of the Southern areas very considerably above the average.

On the other hand, the advantage of keeping the men out, in spite of the delays from the winter rains, is seen in the reduced cost per square mile where all expenses chargeable to the soil-survey work are included. Last year the average cost to the Department of Agriculture was $2.81 per square mile, and this year the total cost is $2.63 per square mile. It is probable that this is the lowest cost that can be reached, and from now on the cost may gradually increase somewhat, owing to the increased salaries which it may be necessary to pay to hold experienced men in the service.

There has been a great demand for our men from colleges and experiment stations and in private enterprises, but it has been the desire of the Department to keep the men at least five years in the soil survey, after which it is believed they will have had as much experience as they can get from such service, and they should then be prepared to take up special lines of investigation, or be ready to enter into positions of responsibility in educational institutions where soil investigations are being built up.

Although a total of $61,565.16 was spent by the Department for the soil-survey work and $1,748.35 by State organizations cooperating, and 63 areas were surveyed and mapped, with an average of 369 square miles each, we were unable to reach more than half of the areas in which surveys have been requested, and we have on file requests for nearly two years' work with the number of parties available with our present appropriations.

PUBLICATION OF THE REPORT ON FIELD OPERATIONS.

In my last report I called attention to the urgent need—if the full benefit of the soil-survey work is to be secured—of a change in the manner of publishing and distributing the reports on the soil surveys. As the law now stands, in the joint resolution approved February 23, 1901, the manuscript of these reports has to be submitted to the Public Printer all at one time, and the reports must be issued as one volume, with the maps in an accompanying portfolio. The Senate and House of Representatives together have 9,000 copies and the Department has 8,000 copies for distribution. This gives each Representative about 16 and each Senator about 32 copies—about enough for the public libraries and institutions in their respective States. In addition, the Department has usually ordered from 500 to 1,000 reprints of the report on each separate area, and has distributed these as far as they would go in the districts to which the work pertains. Besides being entirely inadequate to fill Congressional needs, this manner of publication has the disadvantage of not enabling the Department to meet the local demands.

One of the chief values of this work lies in the suggestions it affords to the owners of land in the area in directing their attention to new crops and to better methods of agriculture. The bound copies that go to libraries, public institutions, and prominent citizens are very good as works of reference; but for the utmost good to come of the soil survey, copies of the separate reports and soil maps should be placed in the hands of a considerable number of people within the area surveyed, and our experience in the past has shown that there are from 500 to several thousand requests of this kind that the Department has not been able to meet. I would therefore recommend to Congress that, in addition to the bound volumes already authorized, there be printed in the form of advance sheets, as soon as the manuscript, maps, and illustrations can be prepared, a separate report on each area surveyed as completed, of which 500 copies shall be for the use of each Senator from the State, 2,000 copies for the use of the Representative for the Congressional district in which the survey lies, and 1,000 copies for the use of the Department of Agriculture. The reports could in this way be sent out from six to twelve months earlier than is now possible, and could be distributed while the matter is still fresh in the minds of the people who have watched the progress of the field work. It would also be practicable in this way to supply the local demand, a thing quite impossible under the present plan.

ALKALI RECLAMATION.

During the past year the Bureau of Soils has been engaged in making alkali reclamation demonstrations in several parts of the arid

West. One such experiment is located near Salt Lake City, Utah, where there is an area of about 120 square miles (75,000 acres) of land unproductive because of excess of alkali. A tract of 40 acres, typical of this waste land, was secured in the summer of 1902 for the purpose of experiment, and the work of reclamation, which is being done in cooperation with the Utah experiment station and the owner of the land, has progressed rapidly and satisfactorily.

At the time of beginning the work on this tract it contained a little more than 2½ per cent of salt, or a total of 6,650 tons of salt in the soil to a depth of 4 feet. At the present time there has been removed from this tract, by the simple method of underdrainage and flooding, two-thirds of this quantity.

The following table gives the quantity of water added to the 40-acre tract and the amount of salt added in the irrigation water. The period covered extends from September 1, 1902, to September 1, 1903.

Total quantity of water used in flooding and amount of salt added from this source in the experiment at Salt Lake.

Date.	Water added.	Source of water.	Salt added.
1902.	*Cubic feet.*		*Pounds.*
September	284,400	Canal	24,000
October	940,000	do	83,900
November	171,300	Rain	
December	166,500	do	
1903.			
January	291,800	Rain	
February	136,400	do	
March	132,000	do	
April	112,000	do	
May	576,900	do	79,000
Do	760,900	Canal	70,700
June	106,000	Rain	
Do	676,500	Canal	169,190
July	36,588	Rain	
Do	1,691,966	Canal	
August	2,122,157	do	212,000
Total	8,305,411		638,790

The following table shows the drainage from the tract from September 1, 1902, to September 1, 1903, and the quantity of salt removed in the drainage water during that period:

Total quantity of water carried off through the drains and the quantity of salt removed in this way in the experiment at Salt Lake.

Date.	Drainage.	Salt removed.
1902.	*Cubic feet.*	*Pounds.*
September	158,700	152,200
October	265,000	195,100
November	251,000	353,800
December	139,700	187,600
1903.		
January	257,300	391,200
February	174,400	214,800
March	428,000	590,700
April	26,900	26,500
May	521,500	567,100
June	274,500	345,200
July	480,490	556,459
August	814,890	1,221,742
Total	3,792,380	4,802,601

From the foregoing tables it will be seen that there has been added to the Swan tract 8,305,411 cubic feet of water, equivalent to 57 inches in depth over the entire tract, and of this quantity 3,792,380 cubic feet, or 45 per cent, was recovered in the drainage. This drainage water, equivalent to 26.2 inches in depth over the entire tract, carried 2,401 tons of salt. Should we consider the seepage water which has drained into the subsoil and not out through the drainage tile, it is likely that at least 4,000 tons of salt have been eliminated from the land.

Seventy-five per cent of the area of the tract at Salt Lake contained less than 0.40 per cent of alkali in the first foot of soil as against 2½ per cent one year ago, and the entire area, it is believed, will be sufficiently sweetened by the end of the present season to permit the growing of a shallow-rooted crop. It will be seen from this that the ultimate complete reclamation of the land seems assured, and the Department believes that the object lesson thus afforded the farmers of this and other arid regions will stimulate them to take up the work of reclaiming these waste but fertile lands.

The value of the alkali lands at Salt Lake City is only $8 an acre, while lands not affected by alkali bring from $100 to $350 an acre. The cost of installing the drainage system was about $16 an acre, so that even with the additional cost of the irrigation water the margin of profit in the reclamation of these lands is wide enough to interest capital.

Besides the work at Salt Lake City, a tract of 20 acres near Fresno,

Cal. where lands have depreciated not less than $1,000,000 in value in the last few years on account of the rise of alkali—was taken under lease for reclamation. This land was at one time sold for $350 an acre, but had become badly alkaline, and was abandoned and of merely nominal value at the time of undertaking its reclamation. The work at Fresno has been quite as successful as at Salt Lake City, and at the end of four and a half months the greater part of the 20 acres was in condition to permit the planting of alfalfa, which crop will be seeded as soon as the proper season arrives.

The cost of installing the drains at Fresno was $15 an acre, but at Yakima, Wash., where a third experiment is under way, the cost was $21 an acre, a difference due mainly to the higher price for drain tile. The system at Yakima has also been successfully installed, and land, worthless for agricultural purposes at the inception of the experiment, will, it is believed, be in as productive a condition at the end of two years as contiguous lands now valued at $150 an acre.

It is the purpose of the Department to establish six of these demonstration experiments in parts of the West where there has been great loss from the rise of alkali. The need for such object lessons has been forcibly impressed upon the Department by the apathy of the communities where the alkali evil exists and increases. The people seem to stand in awe of alkali and to doubt that they can cope with it, notwithstanding the insistent teachings of experts to the contrary. This is not the case in Egypt, where vast areas of land more salty than any but the very worst soils in the Colorado Desert have been reclaimed by practically the same methods as those recommended by the Department and now successfully in use in these experiments. And these demonstrations have been undertaken in the belief that when the people see that the rise of alkali can be prevented, or that where alkali has accumulated it can be economically removed, they will take the matter into their own hands and either privately or cooperatively set about the systematic protection and reclamation of these very valuable western lands.

TOBACCO INVESTIGATIONS.

Some supervisory work was done in Connecticut during the past fiscal year, but the large purpose of the Department, which was to show the Connecticut tobacco growers that a wrapper leaf of superior quality could be produced on a specific soil type established in the soil survey of the Connecticut Valley, has been successfully brought to a close. It remains now for the growers to put the shade-grown Sumatra industry on a substantial basis, toward which condition great progress has already been made.

The investigation of the fermentation of Ohio tobacco has also been continued, and the interest in bulk fermentation, which is far better

than the case method up to this time largely employed by the packers, is gaining ground.

The quantity of tobacco handled according to the method prescribed by the Bureau of Soils has increased from 655,200 pounds of the 1901 crop to 4,204,800 pounds of the crop of 1902. This tobacco is Zimmer Spanish and Little Dutch, varieties used in the manufacture of cigars, and the substitution of the bulk method of fermentation for the present practice of case fermentation will not only prevent great loss from rot and imperfect curing, but will also result in a general improvement in the several grades of this tobacco, and thus greatly increase the profits of the grower and packer.

By far the most important work of the Bureau of Soils during the past year, under the authorization for tobacco investigations, has been the experimental growing of Cuban cigar-leaf tobacco on certain soils in South Carolina, Alabama, and Texas. These soils, the Orangeburg sandy loam and the Orangeburg loam, are apparently very similar to the tobacco soils of Cuba, and the aroma of the leaf grown on one of these soils in Texas has been pronounced by the trade to be very fine. The crops grown on the experimental plots are now in course of fermentation, and it is too early to state definitely what the outcome will be, but so far as is now known the quality of the leaf will be excellent.

As these experiments in the South look toward the establishment of a new tobacco industry in that part of the country and to the production of a leaf to compete with the Cuban grown tobacco, a comparative statement of the production and value of the domestic leaf and the imports and value of the Cuban tobacco is appended.

Production and value of filler tobacco in 1901.

Type.	Production.	Value.
	Pounds.	
Ohio	35,654,314	$3,832,839
Pennsylvania	17,614,380	2,113,725
Other domestic filler	17,666,531	1,971,584
Total domestic filler	70,935,225	7,918,148
Imported Cuban, 1901	18,554,775	16,212,773

In the above table the production of the domestic tobacco is on the basis of the fermented leaf, 20 per cent having been deducted from the total production for shrinkage in fermentation and loss in handling. In the case of Ohio the necessary allowance for other types than the filler types grown in the State has been made. Two cents per pound has been added to the value of the domestic tobacco to provide for the expense of fermentation, etc., thus putting the Cuban imports and domestic filler on the same basis. It will be seen from these figures

that the Cuban imports, while only one-fourth as great in quantity, represent two and one-third times the value of the domestic product.

It is the purpose of the Department, if the results of this year's work warrant, to carry on the filler experiments in the South on broader lines, similar to those of the Sumatra experiments in Connecticut, and then to extend its operations into other States where the results of the soil survey show that tobacco can be raised or where improvements can be made.

WORK OF THE SOIL LABORATORIES.

Besides routine work the laboratories of the Bureau of Soils have been developing several special investigations in the physics and chemistry of soils. Much of their work is of a purely technical character, necessary to a proper understanding and handling of the large soil problems which the Bureau is investigating, but not in itself of immediate interest or value to the practical agriculturist. Some of the work, however, has an immediate interest and is of a far-reaching and fundamental character.

The subject of most practical importance to the farmers of the country is the yield of crops, which has been popularly believed to be more or less directly influenced and controlled by the chemical characteristics of the soil. The Bureau has therefore made an exhaustive research, the results of which modify very materially the current conceptions of this matter. In considering the question the aim was to determine what amount and proportion of the several mineral plant foods were actually in solution in the soil at any one time, or from time to time; since it has been admitted by practically all authorities that it is the solution naturally existing in soils which is the immediate source of the mineral foods obtained by the crops growing upon them. Birner and Lucanus, as long ago as 1866, pointed out that plants can be grown to perfection in well water if suitable physical conditions are preserved, and, as a matter of fact, they grew oat plants in such water, renewed weekly, the yield of grain being double that from a rich garden soil.

Until the work was undertaken in this Department it had never been possible to make a satisfactory study of this subject, owing to the difficulties encountered in isolating the natural nutrient solution from the solid soil and in analyzing this solution for the extremely small amounts of dissolved material maintained in it.

By careful work and unusual ingenuity these analytical difficulties have been surmounted by the Bureau and methods devised that enable us to obtain the soil solution and to estimate, with a degree of accuracy little short of marvelous, the amounts of the constituents contained which are of significance for plant growth. Moreover, by means of portable outfits it has been possible to make these determinations in

the field, where local conditions can be studied in conjunction with the analysis of fresh soil samples.

The chief of the Bureau, Professor Whitney, concludes, from the consideration of some hundreds of examinations with these new and exceedingly delicate methods, that there is no apparent relation between the dissolved salts of the soils, as determined by the methods, and the yield of crops, and that there are no constant differences between the different types of soil, although these types differ widely in their agricultural values. With such small differences as were actually found, quite as often the larger amount of plant food was found associated with a poorer crop, and vice versa; and, furthermore, the chemical differences between soils of various types with known wide variations in agricultural value, or between soils of the same type supporting on the one hand good, on the other poor crops, were no larger than those found between soils yielding approximately equal crops.

He argues, therefore, that nearly all soils are amply supplied with the necessary mineral plant food, and that these plant foods are not in themselves a matter of paramount importance to the agriculturist, for their supply as regards the plant is determined by the supply of soil moisture which the crop can obtain from the soil; that the chemical analysis of a soil can not in itself, therefore, throw much light upon the problem of fertility, but when the farmer attempts to control the factors governing crop yield his attention must be directed to the mechanical condition of the soil as affecting the supply of soil moisture with its dissolved mineral nutrient, to the effects of climate, to rotation, and to general soil management. These matters have all been fully treated in a recent publication (Bulletin No. 22) of the Bureau of Soils.

BUREAU OF STATISTICS.

WORK OF THE YEAR.

The work of the Bureau of Statistics has been continued on the usual lines. In addition to the regular work in estimating crop conditions, etc., statistical matter relating to the principal crops and farm animals, freight rates, exports, etc., in the United States and foreign countries has been prepared for publication, and numerous inquiries from various interested parties as well as Bureaus and Divisions of this Department have been answered, all of which has necessitated a vast amount of research and compilation.

Several special reports have been published during the year. These reports include a statistical description of the "Wheat Ports of the Pacific Coast," "Practices in Crop Rotation," "Flaxseed Production," "Commerce and Manufacture in the United States," "Milk Transportation: Freight Rates to the Largest Fifteen Cities in the United

States," and "Relations of Population and Food Products in the United States."

FOREIGN AGRICULTURAL STATISTICS.

The statistical expert who has for some years had charge of the crop statistics of foreign countries competing with the United States has been stationed during the year in London, England, where he has been in closer touch with the statistical offices of the different European governments, whose reports, along with the most authoritative commercial intelligence of interest to American agriculturists, he transmits to Washington by mail or cable from time to time. Negotiations with the governments of various important grain-producing countries of Europe, and also with that of the Dominion of Canada, looking to a telegraphic interchange of crop reports similar to that already in operation between the United States and Hungary have been continued, and it is not improper to state that these negotiations have now reached such a stage that there are good grounds for believing that the growing season of another year will see the American farmer placed in as prompt possession of trustworthy statistics concerning the principal grain crops of foreign countries as he is of those of the United States.

COOPERATION WITH OTHER BUREAUS AND DIVISIONS.

During the year there has been cordial cooperation between the Bureau of Statistics and the Bureau of Plant Industry, the Bureau of Animal Industry, the Bureau of Forestry, and the Bureau of Soils, with such satisfactory results as to assure even greater cooperation and mutual dependence in the future than in the past. Throughout the whole of the research work of the Department the best results have been obtained by the cooperation of one set of specialists with another. The statistical work contained in the various publications of the different branches of the Department of Agriculture is largely done by employees of the Bureau of Statistics, and such statistical work as is not done in that Bureau is carefully revised by the Statistician and receives his approval before being published as the work of any other Division or Bureau of the Department.

COST OF CROP PRODUCTION.

In cooperation with the State Agricultural College of Minnesota, an investigation is being conducted by the Division of Statistics to determine the cost of production per acre of the principal crops. Although this work is not sufficiently complete to permit of publication of results at the present time, these data, when properly tabulated and analyzed, will undoubtedly be of great value in solving questions of farm management, and various other problems that confront the modern farmer.

THE STATISTICAL LIBRARY.

While there is no branch of statistics having a close relation to the agricultural industry that is not more or less adequately represented in the Department's statistical library, as regards the literature of prices, it is believed to be the best equipped library in the country, and no reasonable expenditure that may be necessary to maintain its present high standing should be withheld. Its card index to agricultural statistics is exceptionally complete and well arranged and has proved of great value to visitors who have had occasion to consult it.

BUREAU ORGANIZATION.

On July 1, 1903, the Division of Statistics became a bureau, and the Division of Foreign Markets was placed under the direction of the Statistician. Both the clerical and field forces will now be materially strengthened, and, while the work must necessarily be continued along practically the same lines as heretofore, no effort will be spared to strengthen and improve the reports on the staple crops and give more detailed information with regard to fruits and various minor crops. Until the present year it was found impossible to make quantitative estimates of any but the principal crops, but flax was added during the year, and the necessity for extending this work to embrace other products—such as rice, sugar, fruits, etc.—is every day being more forcibly brought to the attention of the Department. With a moderate addition to the field force the organization for collecting data will be sufficiently well organized to enable the Statistician to include details of all minor crops and of fruits in his monthly reports. But to successfully extend the work to embrace these crops it will be necessary to strengthen the office force by the appointment of a sufficient number of computers to collate and analyze the reports sent in by correspondents and field agents.

The organization of the field force has already been carried to a very high state of efficiency, and it is proposed materially to increase this efficiency by the appointment of additional field agents so soon as the bureau organization becomes effective.

It is my desire to so strengthen this Bureau as to enable it to become, as I conceive it should be, the principal source of reliable information on the agricultural resources of the country.

FOREIGN MARKETS.

COMPREHENSIVE INVESTIGATIONS.

Special comprehensive investigations involving much labor in the collection of statistics and in table building have engaged the efforts of the Division of Foreign Markets during the fiscal year. These investigations bring together vast amounts of information concerning

the trade of this and other countries in exporting and importing farm and forest products which has not hitherto been in form readily available to the general public.

TARIFFS OF FOREIGN COUNTRIES.

On account of the numerous changes in the tariff laws of many important countries, frequent inquiries are referred to this Division for information regarding tariff rates and customs regulations of certain agricultural products in foreign countries.

In order to supply this information in condensed form, the Bureau has been charged with the publication of a series of bulletins giving, in English, the import duties on certain important groups of agricultural products that are levied in foreign countries.

The greatest care has been exercised to make this information accurate, and no efforts have been spared to get the most recent information from each country.

The countries, including their colonies and dependencies, for which these tariff schedules have been compiled, number 162, which includes, for the sake of completeness, the tariff of the United States and that of the Philippine Islands.

FIFTY YEARS OF EXPORTS.

The numerous demands for information as to export statistics of farm products from the United States, covering a period of years longer than the ten-year statements customarily made by this Division, have suggested the compilation of tables showing these exports for a long period of years, beginning with 1851. From these tables are derived the figures on our exports of farm products given in the earlier portion of the present report.

These figures exhibit a steady and regular increase in the volume of our agricultural export trade, in which cotton, grain and grain products, and meat and meat products were the principal factors. Other important items were live animals and tobacco. The five items mentioned have formed the bulk of our agricultural export shipments throughout the period 1851–1902, with the exception of the years 1861–1865 when, on account of the civil war, our exports of cotton were almost entirely suspended.

GERMAN IMPORTS OF FARM PRODUCTS.

The imports of farm products into the German Empire were made a special subject of inquiry by the Division of Foreign Markets, and resulted in a full analysis of products by kind and by country of origin.

Farm products constitute a much larger percentage of the imports of the German Empire than they do in this country, the percentage

for Germany being 59.2 for the five years 1897–1901. The average annual value of the farm products imported from 1897 to 1901 was $745,198,480; the amount for 1901 was $790,564,700, of which amount the United States supplied 21.9 per cent. Of the imports of agricultural raw materials, the United States supplied 20.5 per cent; food products, 21.7 per cent; feed stuffs, 37.3 per cent; miscellaneous farm products, 3 per cent.

As contributors to the imports of farm products into Germany the various countries rank in order as follows, with the percentage of imports derived from each: United States, 21.9 per cent; Russia, excluding Finland, 16.3 per cent; Austria-Hungary, 10.6 per cent; British East Indies, 5.6 per cent; Argentina, 5.4 per cent; Italy, 4.4 per cent; France, 4.4 per cent; the Netherlands, 4 per cent; Brazil, 3.2 per cent; Belgium, 2.8 per cent; United Kingdom, 2.7 per cent; Dutch East Indies, 2.4 per cent; British Australasia, 2.4 per cent; Denmark, 1.6 per cent; Switzerland, 1.6 per cent; Roumania, 1.3 per cent. No other foreign country has a percentage as high as 1.

TRADE IN FOREST PRODUCTS.

This subject, which had hitherto received scant attention, has been made a prominent subject of investigation during the year just closed, and will hereafter receive the attention of this Division in conjunction with the subject of trade in farm products.

While it is true that in the immense aggregate of our foreign trade forest products occupy a small place relatively, yet, expressed in value, this trade has grown to large proportions, the growth being more especially manifest in exports than in imports. The domestic exports of forest products in 1893 amounted to $28,127,281, and during the five years 1893–1897 the annual average was $31,782,928. During the following five years, 1898–1902, the annual average grew to $47,648,530, the highest amount for one year being $55,369,161 for 1901. This average was considerably exceeded in 1903, when the amount was $58,281,124. During the eleven years the value of the domestic exports of forest products was about 3 to 4 per cent of the total domestic exports.

During the five years 1893–1897 the annual average value of the imports of forest products was $44,638,795, an amount from which the imports for each year did not vary much. In the following five years the annual average increased about $10,000,000, making the average for 1898–1902 $55,205,996; the highest amount for one year was $60,633,078, in 1900. In 1903 the value of the imports of forest products rose to the highest figure yet attained, $71,478,022. The relation between the value of the imports of forest products and the total imports is expressed by 5.9 per cent for the five years 1893–97,

being 7.1 per cent for the five years 1898–1902 and 7 per cent for the year 1903.

The imports of forest products are constituted chiefly of various gums, india rubber, cork, dyewoods and their extracts, and cabinet woods; also timber, lumber, and wood pulp, principally from Canada. It appears, then, that the principal portion of these imports is of materials that do not grow in this country or, if growing here, are not produced in sufficient quantities for the demands of consumption, as in the case of timber, lumber, and wood pulp.

The imports of agricultural products for 1903 amounted to $456,199,325, a higher amount than for any preceding year and $36,060,037 greater than for 1900. Of the total imports, 44.5 per cent are classified as belonging to farm products. This percentage shows a decline; for the five years 1893–1897 it was 51.5 per cent and for the five years 1898–1902 it was 48.7 per cent.

Farm products have declined as an element of domestic exports also during the last eleven years, although no decline is perceptible during the last five years. In 1903, 63.1 per cent of the total domestic exports was composed of farm products.

Upon combining the domestic exports of forest products with those of farm products, the total constitutes 67.3 per cent of all domestic exports for 1903. The percentage for the preceding five years was 68.8. The value of the farm and forest products exported for 1903 was $936,760,575, compared with which is the annual average of the preceding five years, $908,686,344, and the average of the five years 1893–1897, $647,857,875.

These two classes of products constituted 51.4 per cent of the imports of 1903, the percentage for the preceding five years being 55.8 and for the five years 1893–1897, 57.1. In value the imports of these two classes of products in 1903 amounted to $527,677,347, in comparison with which are the annual average of the five preceding years, $434,331,088 and the annual average of the five years 1893–1897, $33,805,721.

DIVISION OF ENTOMOLOGY.

WORK ON INSECTS FROM ABROAD.

THE ASIATIC LADYBIRD ENEMY OF THE SAN JOSE SCALE.

In the report of last year a rather full statement was made concerning the importation of a ladybird enemy of the San Jose scale, found in China and Japan by the first assistant entomologist. During the late summer of 1902 eight colonies of this beetle were distributed in six States. In the experimental orchard of the Division of Entomology the insect wintered well out of doors, and

started breeding early the present season. The colonies distributed during that summer were mainly put in charge of entomologists of State experiment stations. During the early summer of 1903 some 26 colonies were distributed in Maryland, North Carolina, Georgia, Alabama, Delaware, New Jersey, New York, Ohio, Oregon, Tennessee, Virginia, and West Virginia.

Of last year's distributions, those sent to Georgia have given the best promise. One of these established in a large orchard of 17,000 peach trees, with a contiguous orchard containing 250,000 trees, both orchards infested with scale, shows the most satisfactory results. By the 1st of July, 1903, the ladybird had spread through the original orchard of 17,000 trees and then occurred to the number of thirty or forty thousand. Three additional broods are expected during the season, and these numbers should be vastly augmented. Colonies have been distributed from this orchard to various parts of Georgia.

The experiences of the year have, therefore, been very encouraging. Every effort will be made to distribute this beetle throughout the regions where the San Jose scale occurs. The work, however, is still in the experimental stage, and too great hopes should not be aroused. Recommendations for the prompt application of sprays and other remedial treatment should not be neglected.

OTHER BENEFICIAL INSECTS.

The fig fertilizing insect continues to be a great success in California. Large crops of figs were raised at Fresno, and the quality seems to have been even better than during the previous year. A number of new orchards of Smyrna figs and caprifigs have been started, and there is no doubt that the insect has been thoroughly acclimatized at Fresno and at Niles.

One of the most striking of the recent beneficial results of these introductions has been the good work done by the parasitic enemy of the black scale (*Scutellista cyanea*) which was originally imported by the Division of Entomology from Italy and later from South Africa, and established in the orange and olive groves of California. The best work has been done in the southern part of the State, where the insect has been established in every county south of Point Conception. It is very plentiful in Los Angeles, Orange, and San Diego counties, and is still being sent out from the office of the First Deputy Commissioner of Horticulture at San Francisco. The Los Angeles commissioners distributed over 400 strong colonies at Escondido. At Pasadena the insects have spread naturally, and in the colonization districts over 90 per cent of the black scale has been destroyed by the parasite, which is still breeding.

WORK ON THE COTTON BOLL-WEEVIL.

The continued spread of the cotton boll-weevil, and the danger threatening the most important industry of the South by the direct prospect that it will soon reach all portions of the cotton belt, resulted in the appropriation by Congress of $20,000 for a continuation and enlargement of the work of the Division with that pest. This work was under the direct charge in Texas of Mr. W. D. Hunter, who was aided by a number of assistants.

The funds at the disposal of the Division enabled it for the first time to conduct experiments with the cultural methods of controlling the pest on a large scale. This was accomplished by entering into contract with two representative large planters in typical situations in Texas. By the terms of these contracts the planters agreed to plant, cultivate, care for, and in every way manage the crop exactly in accordance with the directions of the agent in charge. In this manner the Division was given practically complete charge of 325 acres, but without the trouble and expense of renting the land and working the crop. These experiments were located at Calvert, in the Brazos Valley, the most seriously infested portion of the territory at present, and at Victoria, in the extreme southern portion of the State, where the existence of volunteer cotton furnishes the weevils with food very early in the season, thus adding an important feature to the problem that does not occur elsewhere.

At Victoria a field laboratory was fitted up, where a thorough study was made of every feature of the life history of the weevil. The matter of parasites and the possibility of controlling the pest by their artificial propagation, which has always appealed strongly to many planters, received especial attention. In pursuance of this feature of the investigation the agent in charge made a trip to Mexico, where the governmental commission that had been created for the study of the weevil problem has especially concerned itself with the propagation of a mite (*Pediculoides ventricosus*), which, at least under certain conditions, has been found to destroy the larvæ of the pest. The agent made a study of the methods pursued in the laboratory of the commission at Cuernavaca, and through the courtesy of Prof. A. L. Herrera, the head of the commission, he was enabled to bring back to Texas a large number of cultures. These parasites were distributed from the laboratory at Victoria. The work is being continued this season, but the indications are that climatic conditions will always render unobtainable in Texas whatever useful results may have been obtained in Mexico.

WORK ON INSECTS DAMAGING FORESTS.

With the beginning of the fiscal year a section of the Division of Entomology was organized for the investigation of insects injurious

to forests. Dr. A. D. Hopkins was put in charge of this work, and during the year three assistants were assigned to him. The work was carried on in cooperation with the Bureau of Forestry, and investigations have been made in nearly all of the States and Territories. Depredations by a bark beetle on the Silver Pine, Red Fir, and Lodgepole Pine in the Priest River Forest Reserve in Idaho, and by an important wood-boring enemy of the Red Fir near the Olympic Forest Reserve in Washington, were investigated.

An important result of the work of the year was the determination that the destruction of many large areas of timber, which was supposed to be the result of forest fires, was primarily the work of insects, the insects having killed the timber, which then offered favorable conditions for the starting of extensive fires. A serious trouble affecting the pines in the Rocky Mountain region from Arizona to Idaho, caused by bark beetles and which resulted in the death of a vast amount of timber in the National reserves and on public and private lands, was also investigated.

Many other similar investigations were carried on, and the most encouraging progress was made in the attainment of the principal object of the work, namely, the discovery and practical application of methods of preventing losses from the ravages of forest insects. The recommendations for checking the rapid spread of pine-destroying beetles in the Black Hills were adopted by the General Land Office of the Department of the Interior with good results, as were also recommendations for the control of the serious insect trouble affecting the pine timber on some 200,000 acres of forest and ranch land in northeastern New Mexico.

Three field stations were established, one in the Black Hills, one at Tryon, N. C., and one at Hoquiam, Wash.

WORK ON THE CODLING MOTH IN THE NORTHWEST.

This work, which has been referred to in previous reports, was completed during the autumn of 1902. The special agent in charge during the following winter completed a full report on the investigation, which indicates very satisfactory results. Demonstration on a large scale of the efficacy of the measures adopted and recommended showed to the satisfaction of all concerned that the economical control of the codling moth in the Northwest is possible. It was conclusively shown that in the infested regions of the far Northwest from 85 to 100 per cent of the fruit was injured if no remedial measure was used, but that on intelligent application of the remedies advised by the Division of Entomology from 85 to 98 per cent of the fruit might be saved.

OTHER INVESTIGATIONS.

The work upon injurious scale insects has been carried on through the year. The methods of controlling the San Jose scale have become

more effective, and the advice issued by the Division of Entomology is embodied in two recently published and revised circulars giving the latest methods of control. Much work was done in the determination of scale insects for experiment stations and individuals, including the study of considerable material received from foreign sources, and especially from our new possessions, Porto Rico and Hawaii.

The investigations of insects injurious to truck crops have been carried on, and a special study has been made of those forms which injure the sugar beet.

The work on insects injurious to stored products has also been measurably successful, and the remedies proposed for this class of insects have been successfully tried by many individuals. An especial study has been made of the injuries of the so-called powder-post beetles to the wood used in making agricultural tools and furniture.

The insects affecting ornamental plants have also been studied to advantage.

The investigations of insects in their direct relations to the health of man, which have been under way for two years past, have been continued. Careful studies have been made of the habits and geographical distribution of the mosquitoes which convey malaria and those which convey yellow fever. An extensive investigation of the insects attacking the stems of growing wheat, rye, barley, and oats, not, however, including the Hessian fly which was earlier dealt with, has been completed during the year, and a final report prepared for publication.

The insects which affect mushrooms, the gadflies or horseflies, the insects which affect the seed of the clover plant, and the insects which affect the cranberry have been studied during the year and are being written up.

The work on insects affecting shade trees, which has been carried on now for several years, has been continued, and the preparation of an extensive bulletin on this subject is under way.

WORK IN SILK CULTURE.

An appropriation of $10,000 to the Department of Agriculture for investigations in silk culture was made by Congress for the fiscal year 1903. The conduct of this investigation was placed in the hands of the Entomologist. Previous work by the Department in the years 1882 to 1891 had already demonstrated the possibility of raising excellent cocoons of the domestic silkworm in all parts of the United States in which the White Mulberry tree will grow. Therefore, in the investigations to be undertaken at this time, the whole attention of those in charge is naturally devoted to the main practical aspects of establishing the industry. Undoubtedly the first steps are to create a general interest in the subject, to insure the supply of leaves for

food for the worms, and to educate as many persons as possible in the care of the worms, so that a crop of cocoons will be assured to any individual or company desiring to go into the reeling business. The Entomologist, during the summer of 1902, visited the silk-growing regions of Europe and investigated the establishments for the selection of pure eggs and also investigated the communities in which silk culture has its strongest hold. He also contracted for the purchase of two four-basin reels. Considerable quantities of silkworm eggs of the best races were purchased, and mulberry seeds and cuttings of the best varieties were also contracted for.

During the winter and early spring eggs were sent in small quantities to all applicants who were able to assure the Department that they had at hand a proper supply of food for the worms. To those who had no food mulberry cuttings were sent. A small crop of cocoons was raised at the Department in the spring of 1903. Nearly all of the persons to whom eggs were sent reported that they had been able to rear the worms and produce the cocoons without great difficulty, and letters were sent informing the raisers that their cocoons would be purchased by the Department at the current European market rates. One of the reels imported from Europe was put in operation at the Department of Agriculture, in Washington. Two expert reelers were secured from France, and at the close of the fiscal year reeling operations were about to begin. The second of the four-basin reels was loaned to The Seri-Culture and Manufacturing Company, at Tallulah Falls, Ga., where extensive planting of mulberry trees has been carried out and where experimental work is promised.

The establishment of the silk industry in the United States must be a matter of extremely slow accomplishment. Small appropriations by the General Government will assist in the education of an increasing class of silk raisers. The lack of a market for cocoons is the great difficulty at the present time. The limited market created by the Department out of this small appropriation is in reality an artificial one. It is necessary, however, to induce people to continue their interest in the subject and to educate a class of silk raisers, and for the present this method will be continued.

APICULTURAL INVESTIGATIONS.

The correspondence in relation to apicultural matters has been constantly increasing, and has covered a wider range of subjects.

In the autumn of 1902 a trip was made by the apicultural investigator through Nebraska and Colorado for the purpose of investigating certain conditions, especially in Colorado, regarding natural and artificial bee pasturage and the early breeding up of colonies of bees to enable bee keepers to take full advantage of the first crop of alfalfa.

The recommendations made to cultivate early pollen-bearing crops, such as Russian hairy vetch, and to employ more prolific, hardy, and strong-winged bees than Italians, such as the Carniolan and Cyprian races and their crosses, have, wherever followed, resulted in a marked increase in the honey yield and in earliness and size of swarms.

A number of queens of select breeding have been sent this year, as in the past, to experiment stations engaged in apiarian investigations, and for testing in sections where it seemed advisable to try certain breeds or crosses.

A race of bees little known in this country, the Caucasian, native to the southeastern provinces of Russia, bordering on the Black and Caspian seas, has been under observation. It promises to be a valuable addition to the varieties already bred in this country. The workers are good honey gatherers and most remarkably gentle. The queens are quite prolific. The exact status of the race as regards hardiness has not yet been determined, although in Colorado they have not seemed inferior in wintering qualities to the Italians already there.

EXPERIMENTAL WORK WITH INSECTICIDES.

The value of the standard insecticides, both for biting and sucking insects, including food poisons and substances which kill by contact merely, has been established by many years of experiment, but nevertheless, by the practical work of the Division of Entomology, such standard insecticides receive each year the indorsement of additional satisfactory experience. This applies not only to the control of insect enemies of field and garden crops and fruits, but also to house pests, as illustrated by additional practical work done during the year with the hydrocyanic acid gas treatment of houses described in the last annual report. The experimentation with petroleum oils, referred to in the former report, has been started during the present year in conjunction with the Bureaus of Plant Industry and Chemistry of this Department. This work, it will be recalled, was undertaken in response to special requests from the Society for the Promotion of Agricultural Science and from the Association of Economic Entomologists.

BIOLOGICAL SURVEY.

The Biological Survey is engaged in three distinct lines of investigation, each of which is as important and independent as the usual work assigned to a division of the Department. These lines consist of (1) the mapping of the boundaries of natural life and crop zones of the country, from which may be determined the agricultural products suitable to the different climatic conditions that prevail in different parts of the country, and so likely to be a commercial success; (2)

investigation of the economic relations of birds to agriculture and horticulture, in order to determine what birds are useful and what injurious to these interests and to what extent; and (3) the preservation and introduction of game, and also the supervision of the importation of foreign birds, to prevent the introduction of undesirable species, such as have caused much damage in other countries or are likely to become pests in this country.

DETERMINATION OF LIFE AND CROP ZONES.

In determining the feasibility of profitably raising a certain kind of crop for market the first question presenting itself is, Is the climate suitable? This question is largely determined by biological surveys or the investigation of the geographic distribution of plant and animal life. Lines are run through a State wherever necessary, and the plant and animal life and effects of physiographic and climatic conditions are carefully noted. From these lines maps can be made, showing the location throughout the State of life zones—in other words, belts that are adapted climatically to certain crops.

During the year the survey of Texas has advanced to such a point that a little additional work will permit the mapping of the life and crop zones and the publication of a full report of the biological character of the State. This survey should obviate many expensive agricultural experiments.

California presents peculiar difficulties to this work owing to the great diversity of climate found throughout the State, ranging from the Alpine summits of mountains, with their perpetual snow, to torrid deserts, hotter and drier than those of Africa, and including regions where frequent fogs and heavy rains prevail. The enormous agricultural interests of California, with its shipments of more than $60,000,000 worth of vegetable products annually, add materially to the value of the final result. As soon as available funds and the difficult character of the country will permit, a biological map of the State will be published, which, it is believed, will be of inestimable service to agriculturists and horticulturists of the State.

It is very desirable to secure as much information as possible concerning Alaska, in view of the tide of immigration setting in toward that Territory and its consequent development. Work was carried on at several points in the Territory, choice being made of such as would yield the broadest possible results with the limited means available for the purpose. The base of the Alaska Peninsula, on both coasts, and several of the lakes and rivers of the interior, notably Lakes Iliamna, Clark, and Becharof, and the Chulitna, Nushagak, and Ugaguk rivers, were the field of exploration. This region is one of unusual importance for biological investigations, as it includes the northwestern limit of the Pacific coniferous forest and is the point of junction of several life areas.

ECONOMIC RELATIONS OF BIRDS TO AGRICULTURE.

The study of the relations of birds to agricultural interests was continued under the two lines that have heretofore occupied attention, namely, laboratory work and field investigation. In the laboratory attention was mainly directed during the past year to the stomachs of game birds, in preparation for issuing a report upon their food habits, in order to meet a constantly growing demand upon the subject.

Field work included a continuation of investigations on a certain Maryland farm, which formed the subject of one of the bulletins of the Division issued during the year, and the study of the food habits of birds in the principal fruit-growing districts of California, begun in 1901. The California work, as noted in previous reports, has yielded important results, which will be very useful to horticulturists by making it apparent which birds are serviceable and which are injurious to their interests.

Complaints have been received by bee keepers in California of great harm to their business, caused by certain birds, which, it is alleged, destroy large numbers of worker bees. Partial investigations of this complaint do not sustain these charges, but further study is necessary before a final report can be made.

In many parts of the country serious loss is entailed on agriculturists by periodic invasions of noxious insects. When such outbreaks occur hereafter they will be investigated, if practicable, by this Division in conjunction with the Division of Entomology, in order to ascertain, as far as possible, what influence is exerted by birds in checking the increase of the pests and thus diminishing the extent of their ravages.

GAME PROTECTION AND INTRODUCTION.

ENTRY OF FOREIGN BIRDS AND ANIMALS.

The duties assigned to this Division relating to game protection are based on three acts of Congress—the Lacey Act of 1900, the egg act of 1903, and the Alaska game law of 1902. The permits required by the Lacey Act for the entry of foreign birds and animals numbered 387 during the year, and allowed the entry of 629 mammals and 53,106 birds. Under the egg act 2,000 eggs of game birds were imported. Importations of cage birds are made mainly at New York and San Francisco, though parrots are frequently entered at New Orleans and different ports of entry along the Mexican border. Pheasants of various kinds for propagation are imported from Canada in considerable number, coming chiefly through the ports of Detroit, Buffalo, and Niagara Falls. The animals that are brought into the country are almost entirely confined to such as are designed for exhibition purposes in circuses and zoological parks. Most of the importations of

cage birds are made by regular dealers, and are subject to the usual inspection. In the case of passengers bringing in a few birds as pets, it has been found desirable to obviate the annoyance sometimes caused by the delay needed to secure permits, and the facilities granted at New York have been extended to San Francisco. Under the arrangement thus made not more than five birds may be declared by passengers with their personal baggage before an officer of the customs and landed without formal permit. A strict account of the birds thus entered is kept by the customs authorities and reported quarterly.

The object of the law is to eliminate the danger of the introduction of birds or animals which might become serious pests. That such danger is constantly present is shown in the history of Australia, Porto Rico, Hawaii, and other countries, and is instanced by the introduction and spread in the United States of the European sparrow, and to a much more limited degree of the Old World starling. Although the entries at San Francisco are few as compared with those at New York, the danger of introducing injurious species at that port is probably greater than at any other. With a view to still further improving the service at San Francisco, a careful examination was made there in June of the peculiar conditions attending importations from Australia and the Orient, which, it is believed, will be productive of much good. It is hoped that all danger of the introduction of such species as may prove to be pests can be eliminated. So far as is known, the law has thus far been effective. Two mongooses from Jamaica were killed at Philadelphia; 1 mongoose from the Philippines and 2 flying foxes from Australia were destroyed at San Francisco; and 50 flying foxes that arrived at New York from Singapore in December were reshipped to Hamburg, Germany.

ENFORCEMENT OF GAME LAWS.

The cordial cooperation of the Attorney-General and State officials has enabled prompter disposition of cases arising from the illegal shipment of birds and game than ever before. Thirty-five such cases, involving the shipment of 3,729 birds, were reported to the Department, a decrease of four cases and about 1,300 birds from those reported during the preceding year. Since the passage of the act 40 convictions have been secured in cases passing through this Department, and about 20 cases are still pending. Efforts have been concentrated upon one or two areas in the West, where illegal shipments seem to be especially frequent, in order to secure more satisfactory results with the limited means available. Illegal shipment of game has been very frequent in the past, and various methods have been adopted to conceal the character of the shipment. The violators of the law have, however, been driven by increasing insecurity in their illegal trade to new devices. Thus, a consignment recently seized in

the Northwest disclosed game birds concealed in bales of hay which had been forwarded by slow freight. In the attempt to curtail these illegal shipments, I have been much aided by the cooperation, cheerfully and cordially given, of express and railroad companies, and there is reason to believe that illicit shipments can, at comparatively small cost, be reduced to a minimum and the great inroads they make upon the game of our country checked.

PROTECTION OF GAME IN ALASKA.

In Alaska, in the absence of a specific appropriation permitting the employment of competent wardens, it has been impossible to secure a reasonable observance of the game law. Much care has been exercised, however, in the case of the export of heads and skins, and the shipment of these from Alaska for purposes of sale in the United States in violation of the law has been practically stopped. Misinterpretation of the statute was the means of temporarily curtailing the trade in black bear skins, but the misconception has been corrected as far as possible.

PUBLICATIONS.

Under the provision of the Lacey Act requiring the collection and publication of useful information relating to the propagation, uses, and preservation of birds, posters and bulletins have been published annually, showing the close seasons and other provisions of the game laws of the United States and Canada, also lists of game officials in the various States, and other information of like character. The digest of game laws was issued as a Farmers' Bulletin in order to meet the demand and to place a sufficiently large number at the disposal of members of Congress. The compilation of laws relating to nongame birds has been of considerable service. Much of the rapid progress in the character of the legislation protecting birds is directly traceable to the dissemination of the information it contains, and it is noteworthy that the adoption of our system of bird protection has recently been strongly advocated in Brazil and Mexico.

RECOMMENDATIONS.

It has been found impracticable to transport, fence, and maintain elk and other animals on forest reserves and other public lands with the appropriation of $1,000 made for that purpose. I have recommended, therefore, an increase of the appropriation to $5,000 for the ensuing year.

The three distinct lines of work assigned to this Division could be conducted much more economically and effectively were the Division reorganized as a bureau of three divisions, each to have charge of one

of these lines, and were a larger amount appropriated for the performance of the work. I have accordingly recommended such reorganization, with an increase of $1,450 in the statutory roll and $12,000 in the lump fund, in order to accomplish this change and meet the greatly increased demands of some of the sections of the Division.

OFFICE OF EXPERIMENT STATIONS.

PROGRESS OF THE EXPERIMENT STATIONS.

The success of the agricultural experiment stations in leading the way to the improvement of agricultural practice on a grand scale is having as one of its effects a closer union between the stations and the farmers in enterprises directly affecting farm methods. This is leading to demands that the stations shall conduct at least a portion of their investigations in a larger and broader way, in order that the results of scientific investigations, whether in the field or the laboratory, may be more definitely and thoroughly applied in practice under the conditions actually encountered on the farm. A good example of this may be found in the recent cooperative experiments conducted by the Iowa Station at Odebolt, Iowa. The proprietor of a large farm at that place desired to know whether or not the by-products of corn, flaxseed, or cotton seed, or some of the prepared stock feeds when fed in conjunction with corn, would give better results than corn alone. He furnished 220 cattle and the corn roughage necessary for conducting a feeding experiment. The Iowa station furnished the by-products and stock feeds and conducted the experiment. The first test gave results indicating that the addition of so-called condimental stock feeds to a corn and wheat-straw ration gave much lower returns per steer than corn and wheat straw alone.

One of the results of the thorough work of the Illinois station on the breeding of corn has been the formation of the Illinois Seed Corn Breeders' Association. The success of this enterprise has been phenomenal. All of the available supply of the improved seed is rapidly disposed of to farmers and much of it is engaged in advance. The work of this station on corn is proving to be far-reaching in its results, not only in improving the general quality of seed corn, but in inducing practical men to undertake the breeding for special qualities—for protein, for oil or for starch—which the station has demonstrated to be entirely feasible. As a recognition of the value of such work, the farmers' organizations of Illinois have rallied to the support of that station, securing last year State appropriations aggregating $46,000 for special investigations and this year nearly twice that amount, or $85,000.

The Minnesota station has been extending its investigations in the breeding of improved varieties of wheat and other kinds of grain,

making thousands of crosses, and, wherever promising new varieties are found, testing them in a large way, both at the station and on hundreds of farms throughout the State.

The amount of data published by the stations on many agricultural subjects is now very large, and the recent attempts which have been made to reduce this material to organized form in order that it may be utilized for purposes of agricultural education have shown that the stations are doing a great work in supplying the materials out of which a definite science of agriculture is being constructed, and on which courses of instruction in agriculture of different grades can be successfully based.

If our stations are to be continued on the broad basis on which they are at present organized they must generally be supplied with larger funds for the general expenses of investigations in order to conduct their work in a thorough and satisfactory manner. The States can and undoubtedly will supplement the National funds more fully as time goes on, but since the results obtained by the stations are in many cases of general value to the agriculture of the United States, it is worthy of consideration whether they should receive additional financial aid from the National Government. This supplemental aid should, if given, be granted under conditions which will insure its exclusive application to meet the expenses of agricultural investigations.

THE AGRICULTURAL COLLEGES.

Special appropriations for the better equipment and maintenance of the agricultural colleges, aggregating more than $1,250,000, have been made by the States during the past year. The movement in the direction of basing the courses of instruction in these institutions more largely on the science and practice of agriculture itself is continuing, and already has resulted in a considerable increase in the number of students pursuing agricultural courses. A special effort is now being made in a number of our strongest agricultural colleges to make their courses more complete by adding systematic instruction in farm mechanics and rural economics. Increasing attention is being given by these colleges to the holding of summer schools, one purpose of which is to prepare teachers for giving instruction in nature study and elementary agriculture in the common schools. The interest in work of this kind is especially strong in the South at this time, as is shown by the large enrollment of teachers in the Southern institutions. The attendance at the land-grant colleges for the year 1902 aggregated 46,699 students, of whom 6,299 were in agricultural courses. The graduates of these institutions in 1902 were 4,443, and since their organization, 50,026.

This Department is cooperating with the Association of American Agricultural Colleges and Experiment Stations in the preparation of

a comprehensive exhibit at the Louisiana Purchase Exposition showing the progress of agricultural education and research in this country.

SECONDARY AND ELEMENTARY SCHOOLS OF AGRICULTURE.

The attendance at the two county agricultural high schools opened in Wisconsin in the fall of 1902 was large, and the interest manifested in these schools was so great that the State legislature at its last session, recognizing the demand for instruction of this grade, made provision for additional county agricultural high schools with State aid. At the California Polytechnic Institute, San Luis Obispo, buildings have been erected and everything put in readiness for opening the school with agricultural courses this fall. The Mount Harmon School, near Northfield, Mass., founded by the late D. L. Moody, has decided to establish an agricultural department and to offer courses of instruction in that subject. The school already has an equipment consisting of a farm of about 1,000 acres, a dairy of about 200 cows, fruit orchards, and a cannery for putting up vegetables. Mr. Harry Hayward, a graduate of the school and for several months past assistant chief of the dairy division of this Department, has been called to the school as director of the agricultural department. This step on the part of one of the largest secondary schools of the United States is a matter of great interest to those who are following the progress of secondary instruction in agriculture, and is especially significant from the fact that the institution is not a technical school and this is the first attempt to establish an industrial course.

The committee on methods of teaching agriculture of the Association of American Agricultural Colleges and Experiment Stations made a report to the convention of this association held at Atlanta, Ga., in October, 1902, in which it showed that courses in agriculture could be introduced into the public high schools without any violent or radical reorganization of existing programmes for such schools.

Many of the officials in charge of our public high schools and elementary schools are also considering the advisability of introducing agricultural subjects into the curricula of these schools, more especially by giving an agricultural trend to nature-study work.

School gardens, meaning by the term flower and vegetable gardens utilized for educational purposes, are found in the East, the Middle West, the South, the far West, and our insular possessions. They are maintained in connection with the kindergarten and with every other grade up to the high school.

This Department has been aiding the school-garden movement in several ways. Through the Bureau of Plant Industry it has distributed special packages of vegetable and flower seeds to a large number of schools, and conducted a number of school-gardening experiments

in cooperation with the schools and charitable organizations of Washington, D. C. Officers of the Department have in several instances volunteered to direct these experiments outside of office hours. One of the most successful of these experiments was conducted on the Department grounds with a class of 30 boys and girls from a near-by school, under the direction of the science teacher in the normal school of the city.

THE FARMERS' INSTITUTES.

In consequence of the action of Congress during the session of 1902–1903, making definite provision for the work of the Office of Experiment Stations relating to farmers' institutes, it has been possible to put this work on a permanent basis and to begin the formulation of a policy regarding its development.

As a result of a civil service examination, Prof. John Hamilton, of Pennsylvania, was appointed farmers' institute specialist. He has been for many years a lecturer and manager of farmers' institutes, and is thoroughly acquainted with their past development and their present needs.

Since the work of this Department relating to farmers' institutes is based on the principle of giving aid to the institutions maintained under the authority of the States, this Department has established the rule of working in this line through the State officers charged with the management of the institutes.

It is difficult to realize the extent and importance of the farmers' institute movement and its vital relation to the successful incorporation of the results of scientific investigations in our agricultural practice. Under present conditions, with the rapid changes in the personnel of our agricultural population and the almost entire absence of agricultural instruction in our elementary schools, it is of the greatest importance that our adult farmers shall receive definite information regarding improved methods of agriculture and the principles which lie at the foundation of progress in agricultural practice.

EXPERIMENT STATIONS IN ALASKA.

During the fiscal year ended June 30, 1903, experiment stations were maintained at Sitka, Kenai, and Rampart, and a new station established at Copper Center, the experimental work for the most part including the growing of cereals and vegetables, methods of reclaiming, draining, and fertilizing land, and the curing and ensiling of crops. The distribution of seed of hardy varieties of vegetables, cereals, and grasses has been continued and extended, and beneficial results have accrued, as is shown by the constantly increasing number of gardens and other plats of ground which are brought under cultivation. The supervision of voluntary observers of the Weather

Bureau in Alaska has been continued as in former years, there now being 20 meteorological stations which report to the experiment station at Sitka.

The new station which has been opened at Copper Center consists of a tract of about 775 acres, situated in the Copper River Valley, a little more than 100 miles from the seacoast. This tract of land has been withdrawn from entry by the Secretary of the Interior and set aside for the use of the station.

At the Kenai station about 15 acres have been brought under cultivation and all the hardy vegetables, buckwheat, oats, barley, and other cereals are readily matured. Additions have been made to the buildings and a beginning made in animal industry. A record was kept of the milk yielded by a cow purchased for the station, which shows that over 29 pounds was produced daily from native pasture grasses during the months of June, July, and August.

At the Rampart station the work begun in 1901 was confined to the growing of a few varieties of cereals, all of which matured finely. Winter rye sown from seed matured in 1901 successfully passed through the winter and matured a crop of fine grain. These results, attained at a latitude of 65° 30′ N., aid in demonstrating some of the agricultural possibilities of the country. Cooperative experiments have been carried on by Rev. C. P. Coe, who is in charge of the Baptist Orphanage at Wood Island, and these experiments have been conspicuously successful. Winter rye, spring wheat, barley, and oats were matured and a good start made with various tame grasses and other forage crops. Hardy vegetables were produced in considerable quantity, a sufficient amount being grown to supply the 40 members of the orphanage and leave a surplus for sale.

At the Sitka station considerable work has been done in finishing the headquarters building and in enlarging the farm buildings. A small nursery has been established, and several hundred apple trees and currant, raspberry, and other shrubs are being grown for distribution when their adaptability has been demonstrated.

During 1904 efforts should be made to reopen and equip the station at Rampart. The conditions here are representative of the largest body of agricultural land in Alaska and embrace many thousands of acres.

At the Sitka station additional buildings are needed, and there is a demand for a scientific equipment, which should include a chemist, a botanist, and an entomologist, with the necessary laboratory equipments for their various lines.

It is highly desirable that work should be taken up with live stock, but at present this can be done only on a limited scale. The special agent in charge of the station has recommended the establishment of a temporary cattle ranch on Kodiak Island with a view of introducing some of the hardier breeds of cattle into Alaska. He believes that

the Galloway breed is adapted to the conditions in that territory and that southwestern Alaska is particularly suited to this investigation. For a number of years Congress has appropriated for the introduction of reindeer into the more northern part of Alaska, and it seems possible that in a similar way provision might properly be made for the introduction of cattle into the southwestern grass region.

HAWAII EXPERIMENT STATION.

The work of the Hawaiian Agricultural Experiment Station has been continued along the various lines of investigation previously described. Additional portions of the station land have been brought under cultivation, and additions have been made to buildings, fences, irrigation plant, etc., as occasion required and funds permitted. A special effort is being made to build up a working library, and the special agent in charge has contributed his private collection as a nucleus for a station library. The necessity for a well-equipped economic library is peculiarly felt in a region as isolated from library facilities as is this station.

During the past year a number of bulletins have been issued, giving the results of investigations which have thus far been carried on. The experiments begun in the previous year on taro rot and potato rot have been continued on an enlarged scale, and the results already obtained suggest the practicability of combating these diseases. One of the most destructive diseases of the taro may be prevented by proper attention to the irrigation water and to the application of suitable fertilizers. The potato experiments have been continued, and it is found that one form of rot may be successfully combated by the thorough use of Bordeaux mixture, and preliminary experiments seem to indicate that a second disease, which is due to a soil fungus, may be prevented to a very great extent by soaking the seed tubers in a solution of formalin and planting them in uninfested soils. These experiments are to be continued for a number of years in the hope that the results obtained in the preliminary investigations will be confirmed.

Formerly, the growing of corn was an important industry in Hawaii, but through careless methods of cultivation and the attacks of insects the growing of this crop has become an uncertain industry. Investigations have been begun by the station in which the effect of deeper plowing, the use of fertilizers, thorough cultivation, and the introduction of new varieties are tested. The preliminary results thus far obtained have given excellent results and two varieties which have been introduced—Leaming and Boone County White—seem to indicate that these varieties are particularly adapted to cultivation in Hawaii and are apparently more satisfactory than the so-called native varieties.

A collection is being made of the grasses and forage plants of the

islands, and it is hoped that a bulletin may soon be issued concerning them, which may contain notes on the native and introduced species, together with suggestions relative to their value for different purposes.

The investigations on injurious insects have been continued, and a serious outbreak of a mealy bug on alligator pears was prevented by prompt action.

The station is devoting considerable attention to the subject of fiber plants, and a bulletin has been issued on the sisal hemp in Hawaii and investigations are being carried on with Manila hemp and other fiber-producing plants.

Experiments with tobacco, especially with Sumatra leaf tobacco, grown in partial shade furnished by light cloth, have been apparently very successful and will be continued upon a larger scale. It is believed that there are a number of localities where Sumatra tobacco can be grown under shade at a decided profit.

PORTO RICO EXPERIMENT STATION.

Since the last report from the Porto Rico Agricultural Experiment Station a permanent location has been secured adjoining the city of Mayaguez and the station removed from its temporary location at Rio Piedras. The farm on which the station is situated had not been in cultivation for some time and a considerable portion of the season was taken up with clearing the land of shrubs and weeds, repairing buildings and roads, constructing fences, digging ditches, etc. As preliminary to planting, a number of acres was sown with general crops in order to bring the soil in condition for experimental purposes and incidentally test the adaptability of the different plants to Porto Rican conditions.

A beginning has been made to establish nurseries of citrous fruits and rubber and tea plants, as well as varieties of mangoes, bananas, and other tropical fruits. Arrangements have been made by which improved varieties of tropical fruits are being secured from different portions of the West India Islands through the courtesy of the commissioner of agriculture for the British West Indies.

Experiments have been commenced to test various fiber plants, and there are now growing at the station manila hemp, sisal hemp, and a number of species of fiber plants which grow upon the island. Experiments are being conducted to test the value of various leguminous crops for restoring the soil, and thus far velvet beans and soy beans appear very promising. Cowpeas, which had been extensively sown, suffered severely from insect injuries. Alfalfa is also being tested with some promise of success.

The coffee investigations of this station have been continued at the coffee plantation La Carmelita. On this estate 10 acres have been placed at the disposal of the station for experimental purposes, and

the effect of different methods of pruning, shading, fertilizing, etc., are being tested.

During the early part of the fiscal year the botanist of the station visited the northeastern part of the island and made a report upon the native forest, which was fast disappearing. Based upon this preliminary survey a recommendation was made to the Secretary of the Interior that a forest reserve be set aside, and in January, 1903, the President proclaimed the Luquillo Forest Reserve of about 25,000 acres.

For continuing the investigations in 1904 the insular government appropriated $2,700. This will be largely expended on permanent improvements and special investigations. Tobacco investigations and a soil survey of the island have been begun, but owing to the small appropriation the work could be but little more than a preliminary survey. It is desired that this work should be continued in cooperation with the Bureau of Soils of this Department, and it is recommended that the present law, which limits the soil investigations to the continental portion of the United States, be amended so as to permit of an extension of the work in both Porto Rico and Hawaii.

The cordial support which has thus far been accorded the station by the insular legislature, together with the interest manifested by planters in requesting its publications and in soliciting specific information, is very encouraging and bespeaks for the station a high degree of usefulness.

INVESTIGATIONS ON NUTRITION OF MAN.

During the last fiscal year the inquiry regarding the food and nutrition of man has been conducted along the same general lines as formerly, and has included studies of the nutritive value and cost of different food materials in various regions of the United States, special investigations with the respiration calorimeter on the transformation of matter and energy, studies of the changes brought about in cooking, the relative digestibility of different food products, and dietary studies.

Meats, legumes, cereals, fruits, and nuts have been the special subjects of the digestion experiments of the past year. The work with meat has included the study of the influence of cooking, as well as of age, breed of animal, etc., upon digestibility. The experiments with cereals have included the effect of the different methods of the milling of flour upon the digestibility of bread made from it.

Cooking experiments have been made only with meat and have included a study of the effect of cooking upon the flavor, palatability and digestibility, beef being usually used for the purpose. Generally speaking, the meat was cooked in a number of ways, the length of time of cooking, the temperature, etc., varying in the different tests. It

was found that the chief loss in weight during the cooking of beef, and doubtless of other meats also, is due to the driving off of water. When beef is pan broiled there appears to be no great loss of nutritive material. When beef is cooked in water from 3 to 20 per cent of the total substance is extracted and found in the broth. The amount of fat thus recovered varies directly with the amount originally present, that is, the fatter the meat the greater the quantity removed. The amount of water lost during cooking varies inversely as the fatness of the meat, that is, the fatter the meat the less the shrinkage due to loss of water. In cooking in water the loss of constituents is inversely proportional to the size of the piece of meat.

Dietary studies have been made in several widely different localities, and have included a study of the amounts of food consumed by people of varying occupations, age, sex, and circumstances. The purpose has been to secure data in regard to the kinds, amounts, and costs of food materials under different conditions, to give an opportunity for comparison with the data obtained by investigators in other countries, and to assist in establishing a general dietary standard. As a whole, the experiments have given valuable results.

In accordance with the usual plan the investigations have been carried on in cooperation with agricultural experiment stations, agricultural colleges, and other educational institutions in different States, including California, Connecticut, District of Columbia, Georgia, Illinois, Maine, Minnesota, and Tennessee.

Nine dietary studies and thirty-one digestion experiments were made with fruits and nuts, these articles in nearly every case constituting all or almost all of the daily fare. The results obtained warrant the deduction that, as shown by their composition and digestibility, both fruits and nuts can be favorably compared with other and more common foods.

IRRIGATION INVESTIGATIONS.

The work of this branch of the Office of Experiment Stations during the past year has included:

The furnishing of information regarding the requirements and possibilities of irrigation, in both the arid region and the East, to a large number of farmers who either contemplate emigrating to the West or adopting irrigation as an aid to agriculture in the East.

The making of special studies and furnishing expert advice to communities about the methods of distributing water to lessen losses from seepage and evaporation, and about the preparation of plans for draining land in both the arid and humid parts of the United States.

The making of original investigations in order to discover the best methods of handling water and thus promote the largest and best development of the country, and to gather the facts needed to answer

the inquiries which come to the Department. These may be grouped under the following heads:

In the acts making appropriations for these investigations Congress has provided that wherever possible the Department should cooperate with agricultural colleges and experiment stations in the several States. Experience has shown that this is a wise provision, as it enables this Department and the State stations to obtain much larger results than would be possible if each carried on its work alone. It is believed that the arrangement is equally advantageous to both parties. In accordance with the provisions of this act we have made arrangements for cooperative work with a number of the experiment stations of the East, where irrigation problems are assuming considerable importance, and with all of the experiment stations of the arid region, except two. In three States special appropriations have been made by the State legislatures to aid in extending this cooperative work. The Department is also receiving appreciated aid from the various State engineers' offices of the arid States.

DUTY OF WATER.

At the outset of these investigations the Department made an extended study of the quantity of water being used in irrigation under existing methods. This knowledge was needed by courts in the establishment of titles to water, by canal companies in planning and operating irrigation works, by farmers in making water-right contracts or in building ditches for themselves, and it was also an indispensable basis for an intelligent effort to bring about a more economical use of water by the improvement of methods, as well as to furnish advice to the large number of persons who each year undertake irrigation for the first time.

The work of the past year and that planned for the future is to promote the adoption of improved methods. It includes the determination of the amount of water needed to give the best results, the time when it should be applied, and the methods of application best suited to different localities and different crops. In this investigation experiments are being made in which the water actually used by plants is being measured. With this as a basis, the additional quantities necessary to supply evaporation and other losses, which are unavoidable under any conditions, can be determined with greater exactness. The same problem is being taken up from the practical side. Experimental fields have been planted. In these fields different quantities of water are being applied to crops where all other conditions are made as nearly uniform as possible. In this way a quantity of water which will produce the largest returns can be determined.

A prominent feature of the reports made by our agents in 1902 is a discussion of the evils resulting from the use of too much water, the

swamping and ruining for the present of large areas which were only a few years ago highly productive farms. The first remedy which suggests itself is to stop using more water than is necessary, and the work of the Department just outlined is for the purpose of determining what is necessary. Farmers can not make these experiments for themselves because they are dependent upon what they grow for a living and must apply enough water to make sure of the crop. It is, therefore, the duty of this Department to make the experiments, and the benefits certain to accrue fully warrant the outlay. The use of water in excess of the needs of crops not only reduces the yields and ruins large areas of fertile lands, but it deprives other lands equally fertile of a water supply. There is an area of approximately 10,000,000 acres now under irrigation, and canals already built cover an added area of at least 5,000,000 acres. Our work in the past leads us to believe that the use of better methods on the areas now irrigated will make possible the cultivation of the added 5,000,000 acres now under ditch with very little added expense for canal construction. Reduction of yields by the failure to use the proper quantities of water is reason enough to justify the work being done on this line, but the damage done by the surplus makes the continuation and enlargement of this work of great public interest.

The work so far outlined deals with those parts of the United States where no crops can be raised without irrigation. Scattered throughout the arid States, and in the regions between the Missouri River and the Rocky Mountains, there are large areas where crops can be raised without irrigation, but where the productivity would be greatly increased by the use of more water and by methods of cultivation which will conserve the supply of moisture which they already have. The agent in charge of our work in Oregon estimates that there are 3,000,000 acres of agricultural land in that State whose products can be greatly increased by the adoption of proper methods for conserving the moisture which falls outside of the irrigation period, and equally good results can be obtained in other States. In Kansas the best methods of utilizing small sources of water supply are being studied, and experiments are being carried on.

SEEPAGE.

Measurements of former years have shown that the losses from canals by seepage are much greater than have been commonly supposed. The Department is carrying on a series of investigations to determine the best means of preventing these losses. Measurements of a large number of canals show that as a rule the greater losses occur in the comparatively short sections. If these sections could be improved, the leakage would be greatly reduced. In many cases irrigators do not make use of more than 50 per cent of the water entering

the headgates. The saving of these waters, therefore, means an increase of more than 50 per cent in the available supply, or the doubling of the area irrigated, but the benefits to come from this saving will be more than this gain in crops and in watered area. Seepage water from canals and laterals not only often finds its way where it can not be available for irrigation, but it also prevents the cultivation of large areas of land through the rise of ground water until the land becomes too wet for crops. This also brings up the alkali which has been dissolved and makes the land still further unfit for cultivation. The facts being gathered enable the Department to advise farmers and canal managers as to the best plans for distributing water to their fields at the least expense and with the least loss.

Leakage from ditches is a very serious question in the extension of irrigation in the eastern part of the United States. It has been found practically impossible to irrigate the sandy lands of Florida by unlined earthen canals, as the water all sinks before it reaches the grounds to be irrigated. There has been a similar experience in both Wisconsin and New Jersey, and experiments are being made to determine whether or not some cheap and feasible system of lining canals and distributing water can be found.

DRAINAGE.

Requests from communities for advice about the removal of seepage water have been so numerous during the year that it has been beyond the means of the Department to respond to all of them, and it will be necessary to extend this work in the future. There is a special reason why the Government should lend this aid. The injury to each farmer's land does not come from his own neglect or wasteful use, but from the watering of other areas, which action is being encouraged by the Government, so that the individual settler in many instances is a victim of the country's growth and of a recognized State and National policy.

Numerous requests have also come to this office for advice about agricultural drainage in the eastern part of the United States, and especially in the South and Middle West, where there are large areas of fertile land which, if drained, could be made immensely productive. The drainage of such lands is beyond the means of the individual settler. The public welfare will be greatly promoted by having this work done. Every consideration which justified the extension of aid in the reclamation of arid lands applies with equal or greater force to the furnishing of needed advice about the reclamation and improvement of this overwatered land, because it would have exceptional value. Its fertility has not been exhausted by long cultivation, and it is located where transportation is cheap and where there is direct access to densely populated districts. The farmers are there, the markets are

there, and the soil is there. In the aggregate, these swamped areas have a productive capacity equal to four times the State of Illinois, and the inauguration of their improvement takes rank among the important public agricultural movements of the country.

IRRIGATION IN THE EASTERN PART OF THE UNITED STATES.

Irrigation in the humid portions of the United States is proving profitable and is becoming an important factor in the production of certain crops. The irrigation of rice in Louisiana and Texas has added largely to the prosperity of those States and is being rapidly extended. The methods employed differ widely from those used in rice irrigation along the Atlantic seaboard, and the Department is aiding farmers by gathering data as to the quantity of water needed, the best methods of raising it from streams, the cost of pumps, engines, fuel, the construction of laterals, and time and method of applying it. In the South Atlantic States rice culture is having to contend with some troublesome conditions created by the cutting off of the forests on the headwaters of streams. This has filled river channels with the soil washed from the hillsides, and has forced rice growers to contend with a wider fluctuation in streams. A partial investigation of the problems confronting the rice growers in this section has been made to determine the feasibility of providing a supplemental water supply in times of scarcity and also to advise the farmers regarding the best means of protecting their dikes from floods.

An investigation of the requirements of cranberry irrigation is being carried on in cooperation with the State experiment station of Wisconsin. This investigation includes a study of both the irrigation and drainage requirements of this crop. The success of the cranberry industry depends upon the proper use and control of water. It must be applied at the right time, and it must be withdrawn quickly at the right time. Until the last few years no attempt was made by cranberry growers in Wisconsin to exercise control over the water. If nature failed to cover the vines at the right time or uncovered them at the wrong time the crop would suffer. The severe drought of 1895 almost destroyed the industry in that State. With its revival better methods are being adopted; dams are being built to collect the surface water; canals are being constructed to carry water pumped from streams. The development of the industry and the extension of the area under cultivation have brought new difficulties. More water is needed, requiring larger ditches. Greater uniformity in the matter of drawing off water is imperative to prevent the operations of one neighbor damaging those below him. Much litigation has been caused by a lack of arrangements for cooperation and by the construction of inadequate works. This calls for more knowledge as to the principles

which should govern in this work, which this Department is endeavoring to collect and provide.

The results of the present year, while not conclusive, show how greatly the success of this industry will be promoted by an efficient system of canals for getting the water onto the ground and getting it off. On June 11 of this year there was danger of frost. Those who had proper ditches saved their crops. Those who were not so provided lost them. A conservative estimate of the loss in the Cranmoor and Mather regions places this loss at $25,000. The damage due to improper drains in this region which prevented the removal of the water in time was greater than that from frost, so that from these two items in the two districts there was a net loss this year of over $75,000, a sum which would probably be nearly sufficient to construct a system of canals to meet the demands of both districts.

The severe drought which prevailed in the New England and North Atlantic States during the early part of the present summer not only showed the importance of irrigation to market gardeners and others growing high-priced products in this part of the country, but gave an excellent opportunity for observing the effects of irrigation where it was made use of. The facts regarding the operation of a considerable number of private irrigation plants have been collected and will be published for the information of others wishing to undertake similar work. There were also carried on in New Jersey some systematic studies of the effect of irrigation upon asparagus, other vegetables, and small fruits, and on the sandy lands in the southern part of the State.

FOREIGN STUDIES.

The law requires that this Department shall investigate irrigation methods and laws of foreign countries. A report on Egyptian irrigation has been published, and during the past year a study of the methods of operating canals and distributing water among farmers in Italy has been made. Both of these have shown that foreign countries have many ideas and practices which we can study to advantage, and these studies of foreign systems should be continued until our farmers are informed as to the methods of every country in the world where irrigation is practiced.

AGRICULTURAL ENGINEERING.

Attention has been previously called to the importance to American agriculture of bringing about improvements in our practice along a number of branches of engineering. But so pressing has been the demand for investigation relating to irrigation that it has not been possible, with the funds at the command of the Department, to do any considerable amount of work in other lines of agricultural engineering. The studies in drainage, apart from those relating to irrigation,

which it has been possible to make, have been of great value to a number of districts in the East, and these should be extended.

The studies of pumping should also be extended, in order to answer more definitely the many inquiries which are coming to the Department for information and advice. Already thousands of farmers are pumping water for irrigation and thousands of others are thinking of doing so. They write to this Department asking the amount of water required and the size and kind of pumps necessary to furnish it. It is certain that irrigation by pumping will greatly increase in the future, and the money value to farmers of having pumps operated efficiently will be proportionately enhanced. Pumping is also being used to relieve land which has been injured by seepage, and altogether this field is one of the most promising in which we are engaged, and nothing should interfere with continued work on this line.

While the study of power is being made primarily with relation to its use in running pumps, the information collected will prove useful in other lines of farm work. The long-distance transmission of electricity has made it possible to utilize the power of streams so cheaply that it can be profitably applied to many classes of farm work. Competition makes it necessary for our farmers to adopt every means of cheapening production, and the use of this power for operating farm machinery promises much in this line. Power has been largely used on great ranches, but has not been adapted to the needs of the man who is farming on a small scale and doing his own work. The work now being done by this Department is of especial value to this class of home-making farmers, as it will help to put them in a position to compete with those who can take advantage of the economies made possible by doing things on a large scale.

Closely related to this has been the growing interest in a number of our strongest agricultural colleges in the development of courses of instruction in farm mechanics. The increasing use of large, complicated, and expensive machinery in connection with farm operations has led to a demand on the part of the students attending the agricultural colleges for definite instruction regarding the construction and use of such machinery. Important problems regarding the further application of steam, gasoline, electricity, and other kinds of power to farm purposes are also being brought home to these institutions to solve in the interests of our farmers. The manufacturers of farm machinery, realizing that experts trained in the science and art of agriculture as well as in mechanics and engineering would make their most efficient helpers, are beginning to look to the agricultural colleges for such men. The colleges attempting to establish courses in farm mechanics and other lines of agricultural engineering are immediately made aware of the fact that the data for the scientific and pedagogical basis of such courses are very meager, and they are therefore looking to this

Department to aid them in instituting investigations to supply this information. Since it has seemed to this Department that this field of investigation was clearly within the scope of existing law, it has begun to aid the colleges along this line. With our present resources only a very limited amount of work in this line can be undertaken, and I have therefore recommended that $10,000 be appropriated to enable this Department to extend its operations in agricultural engineering, especially on the application of power to farm machinery.

In order that the work of this Department in lines of agricultural engineering other than irrigation may be more definitely recognized, and organized on a more permanent and satisfactory basis, I recommend that Congress change the wording of the appropriation act so as to make the general title of this division of our work "Irrigation and Agricultural Engineering."

OFFICE OF PUBLIC ROAD INQUIRIES.

The National Good Roads Convention held at St. Louis, Mo., April 27 to 29, 1903, in connection with the opening of the Louisiana Purchase Exposition, was probably the most important meeting of the kind ever held in the United States. It brought together a greater number of influential citizens than any previous road convention. Addresses were delivered by the President of the United States, several governors of States, and members of Congress, besides prominent men engaged in agricultural and commercial pursuits, railway transportation, and journalism.

The work of testing the chemical and physical properties of road-building materials has been continued by the road-material laboratory, which is conducted in the Bureau of Chemistry in cooperation with the Office of Road Inquiry.

COOPERATIVE FIELD WORK.

The cooperative field work of the Office deserves special mention. Work of this kind usually results from an invitation extended to the Director by local or State authorities, an agricultural experiment station, or a good roads association. The Department furnishes only the services of its road experts. The materials are supplied, and the expenses of the work paid, by the other factors in the cooperation. The machinery employed is usually furnished free of charge by the manufacturers, who thereby secure an advertisement of their wares; and the railroad corporations usually transport such machinery free on account of their interest in road improvement as a means of developing the country tributary to their lines. The end in view is the construction of a short section of object-lesson or experimental road. Such work furnishes opportunity to test local road-building materials,

and gives the people of the locality an object lesson in methods of preparing the material and constructing the road; and the finished road serves to teach the worth of a good hard road to all who travel over it. In nearly all cases the value of such work is greatly enhanced by the holding of a convention while the work is in progress. This brings together a large number of persons, who not only secure the benefit of the object lesson, but who listen to addresses on all phases of the road question.

Cooperative field work of the kind just described has been carried on to a greater or less extent during the last five years, and its practical value has been amply demonstrated. It certainly yields a maximum of good results at a minimum of expense to the Government. The Director of the Office has recently secured reports from many localities where experimental road work has been done, and they uniformly show that the work was well done and that the object-lesson roads built led to a general improvement of the roads in those localities. During the past year more cooperative field work has been done than in any preceding year, and the demand for Government aid of this kind is greater than ever before.

For greater convenience and efficiency in carrying on the field work of the Office, the country has been laid off into four main divisions, with a special agent in charge of each.

GOOD ROADS AND RURAL FREE MAIL DELIVERY.

The intimate relation which exists between good country roads and rural free delivery of mail can not be too strongly emphasized. Communities which would enjoy the latter must make and maintain the former. In many instances bad roads have prevented the extension of rural free delivery to communities where it was greatly desired, and in some cases have caused suspension of routes already in operation. The desire for extension of the service should, and doubtless will, act as a powerful stimulus to road improvement in many localities.

The work of the Office of Public Road Inquiries appears to be no longer of a tentative character. Year after year it assumes increased importance and wider scope. That it will be a permanent feature of the Department's work hardly seems open to question.

DIVISION OF ACCOUNTS AND DISBURSEMENTS.

The extension and rapid growth in the work of this Department necessitates an increase in the estimates for each year. These estimates are prepared in the Division of Accounts and Disbursements and transmitted to the Congress through the Secretary of the Treasury, and all expenditures are made under the supervision of that

Division. The appropriations for the fiscal year ended June 30, 1903, including $510,000 for deficiencies, were $5,013,960, an increase of $1,091,231.54 over the preceding year. The expenditures during the year amounted to $4,296,882.60, leaving a balance of $717,077.40, but the greater part of this sum is covered by outstanding liabilities.

All accounts for the fiscal year 1901 having been settled, the unexpended balances of appropriations for that year, amounting to $65,127.50, were covered into the Treasury on June 30, 1903.

There was received and deposited in the Treasury the sum of $12,803.56. Of this amount, $4,026.69 were received from the sale of American products in Europe, $382.75 from sales of agricultural products of the agricultural experiment station in Hawaii, $782.45 from the station in Porto Rico, and $548.15 from sales of experimental shipments of fruit to Europe.

The amount paid for rent of buildings in the District of Columbia for the use of the several branches of the Department was $21,700. The amount appropriated for the same purpose for the current fiscal year, 1904, is $27,900, an increase of $6,200.

DIVISION OF PUBLICATIONS.

The work of the Department of Agriculture in all its branches is necessarily reflected in the work of the Division of Publications. As all the other Bureaus and Divisions contribute to the acquisition of information, so the Division of Publications is the channel for its diffusion. Therefore, no possible enlargement of the work of the Department in any particular branch can be conceived of which does not ultimately add to the work of the Division of Publications. It is not within the province of its chief to restrict its work, but only to direct and control it to the best of his ability and with the means at his command. These facts explain quite logically the continued growth in the work of this Division.

Until last year the largest number of publications issued in any twelve-month period was 757 in 1902. The total number of publications issued during 1903, however, was 938. Of the publications issued in 1902, 355 were new. The new publications issued in 1903 amounted to 375, showing that the bulk of the increase in the number of publications issued consisted of reprints, which in turn indicates a continued and pressing demand for the Department publications. While the new publications show but a small increase in number, the number of pages they contain shows an increase of 17 per cent over 1902. The total number of copies of all publications issued during the year aggregated not far from 12,000,000.

The publications known as Farmers' Bulletins seem to satisfactorily supply a widely felt want. Of the total number of copies of all pub-

lications issued during the year, nearly 7,000,000 were Farmers' Bulletins, and of these nearly 4,000,000 copies were distributed, as provided by law, under addressed franks supplied by Senators, Representatives, and Delegates.

In spite of the generous supply of publications, it is constantly necessary to refuse requests, owing to the editions being exhausted and means lacking to furnish a further supply. Under these circumstances I have found it desirable to restrict free distribution abroad to Government and other public institutions and to a few persons engaged in lines of work analogous to our own and actually cooperating with us.

The figures showing the number of publications issued and distributed by the Department would suggest to casual observation that the number was amply sufficient to supply all possible demands. Such, however, is far from being the case. A careful consideration of the applications received afford conclusive evidence that only a comparatively limited number of the nearly 7,000,000 farms in the United States are reached by the publications of this Department. This is a matter of regret, as the full value of the information acquired by the Department can unquestionably be realized only by a prompt and widespread diffusion to all those who might be benefited by it. It is a striking evidence of the general appreciation of the information the publications of this Department contain that over 30,000 copies were sold by the Superintendent of Documents in the face of the enormous free distribution, and that official has moreover declared that the number sold would be twice as great were he able to supply the demands. This suggests the desirability of setting aside, to defray the expense of reprints, the sums received by him for publications sold through his office.

The conservative course recommended by yourself in the matter of illustrations has been carefully followed, the rule adopted being to exclude all illustrations not necessary or at least essentially helpful to the understanding of the text. It is impossible for this Department, for reasons sufficiently obvious from what has already been said, to further restrict the output of publications. In view of the increase in the work of the Division of Publications and the causes which promise its continuance in the future, I have felt constrained to recommend some increase in the appropriations for its use.

THE LIBRARY.

The work of the Library increases from year to year with the growth of the Department, and with increased appropriations it is better able each year to meet the varied demands made upon it. The collection of books and pamphlets now in the Library numbers about 80,000, and contains many books and periodicals found in few, if any other, libraries in the country. Agricultural workers in all parts of the

country look to this Library more and more for assistance in the way of loans of books, verification of references, and preparations of subject lists.

ACCESSIONS.

A larger number of purchases have been made during the past fiscal year than in any year previous. Many new scientific serials have been added to the list of subscriptions, and the list of general agricultural, technical, and scientific periodicals acquired by gift and exchange has been largely increased. The present policy of the Department in the distribution of its documents enables the Librarian to arrange exchanges with many foreign as well as American scientific institutions and societies whose publications form valuable additions to the Library.

TECHNICAL WORK.

The Library has continued the publication of its quarterly bulletin of accessions. The recently adopted subject arrangement of the bulletin has proved to be an added convenience for reference use. Beginning with December, 1902, catalogue cards for current accessions to the Library have been printed at the Library of Congress. Extra copies of these printed cards can be purchased at small cost on application to the Librarian of Congress. A reprint of the index cards for the Yearbooks and the Farmers' Bulletins is in progress to meet the demands from the smaller libraries in the country for indexes to these popular publications of the Department. Provision has also been made for extending this index work to include index cards for some of the most important agricultural periodicals. During the past year there have been requests from several agricultural colleges and experiment stations for suggestions and aid in reorganizing their libraries. Assistance of this kind has been given whenever practicable, and the Department will continue such aid to further the organization and development of agricultural libraries.

NEW BUILDINGS FOR THE DEPARTMENT.

It is gratifying to announce that Congress, at its last session, authorized the expenditure of $1,500,000 for the erection of new buildings for this Department. Two hundred and fifty thousand dollars was appropriated to inaugurate the work and as soon as the money became available steps were taken to secure the necessary plans and specifications. At the outset, some difficulties were met in the matter of reaching satisfactory conclusion with the architects. These matters were not finally settled until early in September of this year, when the contract for the preparation of plans and specifications was awarded to the firm of Rankin, Kellogg & Crane, architects, of Philadelphia.

The Department is now occupying 137,963 square feet of net floor space, 75,771 square feet of which is in rented buildings. In order to accommodate the present needs of the Department alone this amount of space would have to be increased fully 25 per cent. The Department of Agriculture is different in its requirements, so far as buildings are concerned, from other branches of the Government. Our work is largely of a research nature. Laboratories, therefore, are essential and form a considerable portion of the room required. A committee of Bureau chiefs in the Department, consisting of Doctors Galloway, Salmon, and True, has given careful consideration to the varied needs and have made recommendations, which I approve, that the best interests of the Department will be subserved by providing for a series of buildings connected with pavilions in such a way as to make practically one harmonious structure. The chief advantage of this plan is that it can be laid out in such a way as to be added to indefinitely from time to time, as the needs of the Department grow. These ideas formulated by the committee have been further developed by the architects, with a result that a series of buildings has been designed, the central feature of which is an administrative structure. Grouped about this are laboratory buildings to be used by the large Bureaus in their research work.

The scheme, as a whole, provides for the erection of ten buildings, all suitable for the class of investigations which the Department must necessarily carry on. The amount authorized by Congress will suffice for the erection of three of the laboratory buildings, but it will not be sufficient for the erection of the administrative structure. The three buildings will have in them floor space of 100,000 square feet and will enable the Department to comply with the law, in so far as bringing within these structures all those branches of the Department that are now paying rent. The three buildings contemplated will be completed within the appropriation authorized according to the estimates secured at the present time.

CRISIS IN COTTON PRODUCTION.

The invasion of the cotton boll-weevil has been a special menace to our cotton crop, and has done more than anything else to awaken widespread apprehension as to the future of this most important crop. The boll-weevil first appeared in the State of Texas in 1894, and from that time on has been under observation and investigation by the Department through its Division of Entomology. It was not until 1902, however, that this branch of the Department was able to undertake anything like thorough and systematic work in the matter of studying this very destructive enemy of cotton. In 1903 the scope of the work was further enlarged, an appropriation of $20,000 being made in the Division of Entomology for the investigations. Aside from

this work the Bureau of Plant Industry has, during the past year, been carrying on considerable work with a view to securing, if possible, early and resistant varieties by breeding and selection; and has been conducting some more or less general experiments in the matter of crop diversification at special points in Texas. It has also been engaged in distributing a considerable quantity of cotton seed of early-maturing and promising sorts.

The work of the Division of Entomology has shown conclusively the value of good cultural methods, the planting of early-maturing varieties, and the destruction of weevil-infested material, this conclusion having been reached only through the careful and detailed studies of the life history and habits of the insect. The demonstration work along these lines, which the Division carried on the past year, has been exceedingly promising, as it has been shown that cotton can be grown in remunerative quantity, despite the presence of the weevil. Notwithstanding what has been accomplished by the Department, however, the fact remains that the boll-weevil is constantly spreading north and east, and it is probably only a question of time when it will reach all of the cotton-growing States. Thus the country is confronted with a very grave problem, as the invasion of this insect must necessarily mean a complete revolution in present agricultural methods. During a recent visit to some of the Southern States considerable time was spent in the weevil-infested district, and from the facts gathered in this way I am convinced that energetic measures must be adopted to meet the present emergency. After thoroughly canvassing the situation with representative men in Congress and with others, I am of the opinion that a cotton investigation fund should be appropriated and set aside for immediate use in connection with this most serious problem. In order to make the work comprehensive and thoroughly effective, I am of the opinion that a sum not less than $500,000 should be made immediately available for this purpose, the same to be expended under the direction of the Secretary of Agriculture, in such manner as will give the most immediate practical results. As to the problems which might be handled by the Department with such a sum available, I would respectfully call attention to the following:

RECOMMENDATIONS.

1. Checking Sporadic Outbreaks of the Weevil.—It would seem highly important that some action be taken looking to the checking, if practicable, of sporadic outbreaks of the weevil in the territory immediately adjacent to that now infested. This could best be accomplished by the organization of a corps of competent entomologists and could be carried on in cooperation with the State authorities. In order to make this work thoroughly effective it will be necessary for the States interested to enact proper legislation. This is a matter that

could be handled and guided by those in authority, working under the direction of the Secretary of Agriculture.

2. Demonstration Work to Show the Value of Improved Cultural Methods by Which Farmers can Produce Fair Crops in Spite of the Weevil.—This is the most promising field for immediate relief, and owing to the fact that the weevil is so far confined to Texas, the work here outlined would necessarily be limited more or less to this State, although regions in adjacent territory should also have such investigations carried on in them in order that the people may become enlightened in advance of the insect's ravages. The object and scope of the work would be to show by actual demonstration experiments the value of better cultural methods, the value of early maturing varieties, and the value of and necessity for complete and thorough destruction of all infested material. To carry out this work thoroughly and effectively would require a corps of men familiar with cultural conditions, and who have the knowledge and ability to direct the necessary specific work that might be ordered by the Secretary of Agriculture. Legislation would be required in this case, also, to enforce the destruction of infested material; but, under proper organization, this could be brought about.

3. Work having for its Object the Production of New, Early, and Improved Varieties of Cotton.—The value of early varieties has been demonstrated, but most of them have serious drawbacks in that they are poor yielders and the lint drops out easily during storms. These matters may be corrected by proper breeding and selection, and one of the important problems would have for its object the taking up of this work on a systematic scale, to the end of securing sorts which would not only be early, but would be storm-proof and resistant.

4. Studies of Cotton Diseases.—While the boll-weevil is mainly in the public eye at present, the fact remains that other serious pests of cotton cause great losses annually. It is natural to attribute all losses at the present time to the insect in question, whether these losses be from other insects, diseases, floods, droughts, or whatever source. Reliable studies indicate that the loss in Texas alone from the so-called root-rot disease will, in all probability, aggregate several millions of dollars annually. This and other diseases should be thoroughly studied, and corrective measures should be adopted.

5. Cotton Insects.—What is said of cotton diseases is also true of cotton insects (especially of the boll-worm) other than the boll-weevil. These should all receive careful attention, and practical experiments should be carried on with a view to lessening the injury caused by them.

6. Introduction of New Crops.—The urgent necessity for the introduction of other crops which will take the place of cotton can not

be too strongly emphasized. Cotton, of course, should be grown, but the time is evidently at hand when a concerted effort should be made to bring about a change in Southern agricultural conditions in the direction of greater diversification. This is recognized now as a vital question in the South. In many sections already the yield of cotton is barely profitable, so that, when the reduction due to the boll-weevil and other pests is taken into account, it will be necessary to abandon cotton growing altogether; while the decreased yield in the best districts of the cotton-growing sections renders it more important that other crops should be grown. Such crops as alfalfa, sorghum, Kafir corn, and cereals of various sorts should all receive attention, not only for silage, pastures, and winter forage generally, but for green manures as well.

7. Studies and Experiments in Connection with Methods for the Destruction and Control of the Boll-Weevil, and Other Cotton Insects.—It would seem highly important that the Government should take cognizance of the many devices which are being placed on the market for combating the weevil and other insects. This is necessary, as much for positive as negative results. Hundreds of devices and nostrums are offered to the public, and people are led to spend money for them. The Government should be in position to determine, once for all, the value or nonvalue of such devices, and thus be able to definitely and positively advise on all matters of this kind. Aside from this, the Government should take the matter of mechanical devices under thorough consideration, and should encourage, by the utilization of mechanical experts, the construction and use of everything which gives promise of practical value.

8. Studies of Enemies of the Insect.—While the studies of the enemies of the insect have had, so far, no practical result, there is no doubt that this work should be continued, and everything in the nature of enemies, whether they be predaceous or parasitic insects, birds, fungus parasites, or others, should receive careful attention.

9. Securing and Distributing Seed of Cotton Known to have Special Value for Earliness and Ability to Resist the Weevil.—Systematic action should be taken in the matter of securing from every source available seed of promising varieties and thoroughly testing them in the weevil-infested district. In addition to this there should be a systematic endeavor to bring together desirable varieties from all available sources for advance trials in the sections where the insect is likely soon to make an invasion.

10. General Propaganda.—Under this head there should be organized a competent corps of efficient workers, who could, with the cooperation of the agricultural colleges, farmers' institutes, State boards of agriculture, and all such organized bodies, bring to the

attention of planters everywhere the latest results as to methods of meeting the present emergency.

To carry out the foregoing work effectually, it is believed that the best results will be secured by a separate organization. It will be seen that the two branches of the Department primarily interested in this matter are the Bureau of Plant Industry and the Division of Entomology; and their officers and men would be in position to effect the proper organization and to direct the main features of the work. I would, therefore, respectfully recommend that, if the amount already mentioned be set aside as a cotton investigation fund, the Secretary of Agriculture be authorized to take such steps in the perfecting of a proper organization for handling the work as, in his judgment, may be best. Owing to the very nature of the investigations, and the fact that they will involve most thorough and far-reaching scientific work, the management of the general plans must necessarily rest with the Department. It is believed that the work can be strengthened by securing the advice and cooperation of one or two thoroughly practical men in the States most directly interested, viz, Louisiana and Texas. The Secretary of Agriculture, however, should have full authority to organize the work for the sole object of securing, as already indicated, the most immediate practical results.

In order to more effectually handle the problems which must necessarily fall to the work of the Division of Entomology, I have already recommended in my estimates that this important branch of the Department be made a bureau. The work that it has done in the past, especially in the field in question, certainly justifies this action; and I most earnestly recommend that this matter be given primary consideration in connection with the entire problem. It is very desirable, furthermore, that the fullest cooperation be effected by the Department with the experiment stations in the respective States, where the more important work will be conducted. This is especially true of Texas, where the agricultural college is doing everything in its power to aid in the matter, but where it is more or less handicapped by lack of proper facilities and funds.

The fund recommended to be set aside for the purposes mentioned, and used in accordance with the plans outlined, will give the Department such liberty of action as the exigencies of the case demand. An industry which brings to the country an annual income of something over $500,000,000 is threatened, and the time is at hand for energetic action. I again, therefore, most earnestly renew my recommendations for the means and authority to carry out the plans as herein set forth.

Respectfully submitted.

JAMES WILSON,
Secretary.

WASHINGTON, D. C., *November 28, 1903.*

FIRST ANNUAL REPORT

OF THE

SECRETARY OF COMMERCE AND LABOR.

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, December 1, 1903.

To the PRESIDENT:

I have the honor to submit herewith, for transmission to Congress, in accordance with the provisions of the organic act, the first annual report of the Secretary of Commerce and Labor.

The act creating the Department of Commerce and Labor was approved February 14, 1903. Two days later the head of the Department was nominated by the President and confirmed by the Senate. Through your courtesy, the Department was established in the executive offices of the White House, where the first steps toward organization were taken. On March 17 temporary quarters were obtained for the personal staff of the Secretary at No. 719 Thirteenth street NW. On June 16 the present office at No. 513 Fourteenth street NW. was formally opened. Prior to July 1, 1903, the Secretary and his immediate assistants were employed principally in preparations for assembling without interruption to public business the various bureaus of other Departments and independent branches of the Government service to be transferred on that date to the new Department. During this time the Secretary conferred informally with the heads of the various bureaus and offices to be transferred concerning necessary or desirable changes in methods of administration.

As early as June 1 it became apparent that several branches of the Secretary's Office for which careful plans had been laid could not be organized, owing to the lack of a sufficient appropriation. Such organization has been accordingly held in abeyance, except in so far as the requirements could be met after July 1 by details from the transferred bureaus.

On July 1, 1903, the following offices, bureaus, divisions, and

branches of the public service became parts of the Department of Commerce and Labor:

The Light-House Board.
The Light-House Establishment.
The Steamboat-Inspection Service.
The Bureau of Navigation.
The United States Shipping Commissioners.
The National Bureau of Standards.
The Coast and Geodetic Survey.
The Commissioner-General of Immigration.
The Commissioners of Immigration.
The Bureau of Immigration.
The Immigration Service at Large.
The Bureau of Statistics.
The Census Office.
The Department of Labor.
The Fish Commission.
The Office of Commissioner of Fish and Fisheries.
The Bureau of Foreign Commerce.
The Alaskan Fur-Seal and Salmon Fisheries.

The Department organization already effected in part was:

The Secretary's office.
Chief clerk's office.
Disbursing and appointment clerk's office.
Solicitor's office (through detail of acting solicitor from the Department of Justice).
Bureau of Corporations.

The personnel of the Department on that date comprised 10,125 employees, of which number 1,289 were on duty in Washington and 8,836 in the country at large. The appropriations to be expended under the direction of the Department amounted to $9,796,847.

The act making appropriations for the Department contained the following provision:

That the Secretary of the Treasury is hereby authorized and directed, as soon as may be practicable and before the first day of July, nineteen hundred and three, to transfer to the Department of Commerce and Labor all chiefs of division, assistant chiefs of division, clerks, messengers, assistant messengers, watchmen, charwomen, and laborers now employed in the divisions of his office who are wholly engaged upon the work relating to the business of the bureaus and offices of the Treasury Department transferred or to be transferred to the Department of Commerce and Labor under the act of February fourteenth, nineteen hundred and three; and in proportion to the number of persons in the divisions of his office whose time and labor are partially devoted to the work of said bureaus and offices he shall transfer approximately an equivalent number of clerks and other employees to said Department of Commerce and Labor, and the appropriations made for the compensation of all persons transferred hereunder shall be credited to and disbursed by the Department of Commerce and Labor.

Under this provision there were transferred 3 clerks, 2 watchmen, 2 assistant messengers, 1 cabinetmaker, 3 laborers, and 7 charwomen.

The smallness of the initial appropriations rendered it impracticable,

in the time between the creation of the Department and the next session of Congress, to do more than secure the systematic arrangement and coordination of the bureaus and branches brought together. It precluded, except in the most general way, the prosecution of new lines of investigation or the development of new plans of administration. As a Department dealing with commercial and industrial interests it has recognized that the cooperation of such interests is essential to the fulfillment of its purpose, and from the outset such cooperation has been invited. The work of organization has progressed as rapidly as was consistent with thoroughness and with the limitations above outlined. In no perfunctory spirit I acknowledge the faithful, unwavering assistance given to me by the members of my immediate staff in the preliminary work of organization, and I include as deserving this just recognition in an especial degree James R. Garfield, Commissioner of Corporations, Frank H. Hitchcock, chief clerk of the Department, and William L. Soleau, disbursing and appointment clerk. They have been in the Department from its beginning and have had an active and potential part in its organization.

Many of the staff have worked daily far beyond the usual office hours. No one devoted to the interests of a private business could have rendered more loyal service than have they in these early days of the Department's life. They know how much the head of the Department owes to them for their cooperation. He can only express in this simple way his public recognition of the value of their services and of the splendid example they have set of a high ideal of duty.

PRESENT ORGANIZATION OF THE DEPARTMENT.

The present organization may be indicated as follows:

SECRETARY OF COMMERCE AND LABOR.

The Secretary of Commerce and Labor is charged with the work of promoting the commerce of the United States, and its mining, manufacturing, shipping, fishery, transportation, and labor interests. His duties also comprise the investigation of the organization and management of corporations (excepting railroads) engaged in interstate commerce; the gathering and publication of information regarding labor interests and labor controversies in this and other countries; the administration of the Light-House Service, and the aid and protection to shipping thereby; the taking of the census, and the collection and publication of statistical information connected therewith; the making of coast and geodetic surveys; the collecting of statistics relating to foreign and domestic commerce; the inspection of steamboats, and the enforcement of laws relating thereto for the protection of life and property; the supervision of the fisheries as administered by the Federal Government; the supervision and control of the Alaskan fur-seal, salmon, and other fisheries; the jurisdiction over merchant vessels, their registry, licensing, measurement, entry, clearance, transfers, movement of their cargoes and passengers, and laws relating thereto, and to seamen of the United States; the supervision of the immigration of aliens, and the enforcement of the laws relating thereto, and to the exclusion of Chinese; the custody, construction, maintenance, and application of standards of weights and measurements; and the gathering and supplying of information regarding industries

and markets for the fostering of manufacturing. He has power to call upon other Departments for statistical data obtained by them.

For the proper accomplishment of any or all of the aforesaid work, it is by law provided that all duties performed, and all the powers and authority possessed or exercised, at the date of the creation of said Department, by the head of any Executive Department in and over any bureau, office, officer, board, branch, or division of the public service transferred to said Department, or any business arising therefrom or pertaining thereto, or in relation to the duties and authority conferred by law upon such bureau, office, officer, board, branch, or division of the public service, whether of appellate or advisory character or otherwise, are vested in and exercised by the Secretary of Commerce and Labor.

It is his further duty to make such special investigations and furnish such information to the President or Congress as may be required by them on the foregoing subject-matters and to make annual reports to Congress upon the work of said Department.

CHIEF CLERK.

The chief clerk, under the immediate direction of the Secretary, has the general supervision of the clerks and employees of the Department; the superintendency of all buildings occupied by the Department in Washington, D. C.; the direction of the watchmen, engineers, mechanics, firemen, laborers, and other employees connected with the care and protection of the Department buildings; the care of the horses, wagons, and carriages employed; the expenditure of the appropriations for contingent expenses, rents, and printing and binding; the receipt, distribution, and transmission of the mail; the custody of the records and files and library of the Secretary's office; the answering of calls from Congress and elsewhere for copies of papers and records; the duty of passing upon all appointment papers affecting the personnel of the Department; the enforcement of the general regulations of the Department, and the charge of all business of the Secretary's office unassigned.

DISBURSING AND APPOINTMENT CLERK.

The disbursing and appointment clerk is charged with the custody and payment of funds disbursed under the appropriations of the Department and with the preparation of all papers in the matter of appointments.

BUREAU OF CORPORATIONS.

The Bureau of Corporations is authorized, under the direction of the Secretary of Commerce and Labor, to investigate the organization, conduct, and management of the business of any corporation, joint stock company, or corporate combination engaged in interstate or foreign commerce, except common carriers subject to the interstate-commerce act; to gather such information and data as will enable the President to make recommendation to Congress for legislation for the regulation of interstate and foreign commerce; to report the data so collected to the President from time to time as he may require, and to make public such part of said information as the President may direct.

It is also the duty of the Bureau of Corporations, under the direction of the Secretary of Commerce and Labor, to gather, compile, publish, and supply useful information concerning corporations engaged in interstate or foreign commerce, including corporations engaged in insurance.

BUREAU OF LABOR.

The Bureau of Labor is charged with the duty of acquiring and diffusing among the people of the United States useful information on subjects connected with labor in the most general and comprehensive sense of that word, and especially upon its

relations to capital, the hours of labor, the earnings of laboring men and women, and the means of promoting their material, social, intellectual, and moral prosperity.

It is especially charged to investigate the causes of and facts relating to all controversies and disputes between employers and employees as they may occur, and which may happen to interfere with the welfare of the people of the several States.

It is also authorized, by act of March 2, 1895, to publish a bulletin on the condition of labor in this and other countries, condensations of State and foreign labor reports, facts as to conditions of employment, and such other facts as may be deemed of value to the industrial interests of the United States. This bulletin is issued every other month.

By section 76 of an act to provide a government for the Territory of Hawaii, approved April 30, 1900, it is made the duty of the Bureau to collect and present in annual reports statistical details relating to all departments of labor in the Territory of Hawaii, especially those statistics which relate to the commercial, industrial, social, educational, and sanitary condition of the laboring classes.

LIGHT-HOUSE BOARD.

The Light-House Board has charge, under the superintendence of the Secretary of Commerce and Labor, of all administrative duties relating to the construction and maintenance of light-houses, light-vessels, light-house depots, beacons, fog-signals, buoys, and their appendages, and has charge of all records and property appertaining to the Light-House Establishment.

BUREAU OF THE CENSUS.

The Bureau of the Census is charged with the duty of taking the periodical censuses of the United States and of collecting such special statistics as are required by Congress, including the collection in 1905 of the statistics of manufacturing establishments conducted under the factory system, and the collection annually of statistics of births and deaths in registration areas, statistics of the cotton production of the country as returned by the ginners, and (by transfer from the Bureau of Labor) statistics of cities of 30,000 or more inhabitants.

Under the proclamation of the President dated September 30, 1902, the Bureau is charged with the compilation and tabulation of the returns of the Philippine census, taken as of March 2, 1903, under the direction of the Philippine Commission.

COAST AND GEODETIC SURVEY.

The Coast and Geodetic Survey is charged with the survey of the coasts of the United States and coasts under the jurisdiction thereof and the publication of charts covering said coasts. This includes base measure, triangulation, topography, and hydrography along said coasts; the survey of rivers to the head of tide-water or ship navigation; deep-sea soundings, temperature, and current observations along said coasts and throughout the Gulf and Japan streams; magnetic observations and researches, and the publication of maps showing the variations of terrestrial magnetism; gravity research; determination of heights; the determination of geographic positions by astronomic observations for latitude, longitude, and azimuth, and by triangulation, to furnish reference points for State surveys.

The results obtained are published in annual reports, with professional papers and discussions of results as appendices; charts upon various scales, including sailing charts, general charts of the coast, and harbor charts; tide tables issued annually, in advance; Coast Pilots, with sailing directions covering the navigable waters; Notices to Mariners, issued monthly and containing current information necessary for safe navigation; catalogues of charts and publications, and such other special publications as may be required to carry out the organic law governing the Survey.

BUREAU OF STATISTICS.

The Bureau of Statistics collects and publishes the statistics of our foreign commerce, embracing tables showing the imports and exports, respectively, by countries and customs districts; the transit trade inward and outward by countries and by customs districts; imported commodities warehoused, withdrawn from, and remaining in warehouse; the imports of merchandise entered for consumption, showing quantity, value, rates of duty, and amounts of duty collected on each article or class of articles; the inward and outward movement of tonnage in our foreign trade and the countries whence entered and for which cleared, distinguishing the nationalities of the foreign vessels.

The Bureau also collects and publishes information in regard to the leading commercial movements in our internal commerce, among which are the commerce of the Great Lakes; the commercial movements at interior centers, at Atlantic, Gulf, and Pacific seaports; shipments of coal and coke; ocean freight rates, etc.

The Bureau also publishes daily and monthly the reports received from United States consuls and special reports on various subjects supplied by consuls on special request; also, annually, the declared exports from foreign countries to the United States furnished by consuls, and the annual report laid before Congress, entitled "Commercial Relations of the United States." Prior to July 1, 1903, these reports were published by the Bureau of Foreign Commerce of the Department of State. This duty was transferred to the Bureau of Statistics of the Department of Commerce and Labor by the act of February 14, 1903, creating that Department.

STEAMBOAT-INSPECTION SERVICE.

The Steamboat-Inspection Service is charged with the duty of inspecting steam vessels, the licensing of the officers of vessels, and the administration of the laws relating to such vessels and their officers for the protection of life and property.

The Supervising Inspector-General and the supervising inspectors constitute a board that meets annually at Washington, and establishes regulations for carrying out the provisions of the steamboat-inspection laws.

BUREAU OF FISHERIES.

The work of the Bureau of Fisheries comprises (1) the propagation of useful food fishes, including lobsters, oysters, and other shellfish, and their distribution to suitable waters; (2) the inquiry into the causes of decrease of food fishes in the lakes, rivers, and coast waters of the United States, the study of the waters of the coast and interior in the interest of fish culture, and the investigation of the fishing grounds of the Atlantic, Gulf, and Pacific coasts, with the view of determining their food resources and the development of the commercial fisheries; (3) the collection and compilation of the statistics of the fisheries and the study of their methods and relations.

BUREAU OF NAVIGATION.

The Bureau of Navigation is charged with general superintendence of the commercial marine and merchant seamen of the United States, except so far as supervision is lodged with other officers of the Government. It is specially charged with the decision of all questions relating to the issue of registers, enrollments, and licenses of vessels and the filing of those documents, with the supervision of laws relating to the admeasurement, letters, and numbers of vessels, and with the final decision of questions concerning the collection and refund of tonnage taxes. It is empowered to change the names of vessels, prepares annually a list of vessels of the United States, and reports annually to the Secretary of Commerce and Labor the operations of the laws relative to navigation.

BUREAU OF IMMIGRATION.

The Bureau of Immigration is charged with the administration of the laws relating to immigration and of the Chinese exclusion laws. It supervises all expenditures under the appropriations for "Expenses of regulating immigration" and the "Enforcement of the Chinese exclusion act." It causes alleged violations of the immigration, Chinese exclusion, and alien contract-labor laws to be investigated, and when prosecution is deemed advisable submits evidence for that purpose to the proper United States district attorney.

BUREAU OF STANDARDS.

The functions of the Bureau of Standards are as follows: The custody of the standards; the comparison of the standards used in scientific investigations, engineering, manufacturing, commerce, and educational institutions with the standards adopted or recognized by the Government; the construction, when necessary, of standards, their multiples and subdivisions; the testing and calibration of standard measuring apparatus; the solution of problems which arise in connection with standards; the determination of physical constants and properties of materials, when such data are of great importance to scientific or manufacturing interests and are not to be obtained of sufficient accuracy elsewhere. The Bureau is authorized to exercise its functions for the Government of the United States, for any State or municipal government within the United States, or for any scientific society, educational institution, firm, corporation, or individual within the United States engaged in manufacturing or other pursuits requiring the use of standards or standard measuring instruments. For all comparisons, calibrations, tests, or investigations, except those performed for the Government of the United States or State governments, a reasonable fee will be charged.

STATEMENT OF EXPENDITURES.

An itemized statement of the expenditures from the contingent fund of the Department of Commerce and Labor is transmitted to Congress in the usual form. The following summary statement shows the appropriations made for the support of the Department from February 18, 1903 to June 30, 1904, and the amount disbursed from each appropriation from February 18, 1903 to June 30, 1903, the end of the fiscal year:

Appropriations.	Amounts appropriated.	Disbursements to June 30, 1903.	Balance carried to credit of fiscal year 1904.
Salaries, Department of Commerce and Labor, 1903 and 1904	$100,000.00	$14,438.73	$85,561.27
Salaries and expenses, special agents, Department of Commerce and Labor, 1903 and 1904	60,000.00	1,818.32	58,181.68
Rent, Department of Commerce and Labor, 1903 and 1904	16,000.00	2,582.82	13,417.18
Contingent expenses, Department of Commerce and Labor, 1903 and 1904	50,000.00	6,140.07	43,859.93
Total	226,000.00	24,979.94	201,020.06

The disbursements for the period from July 1, 1903 to September 30, 1903, inclusive, after the appropriations for all bureaus and offices had become available, amounted to $584,951.08, and were made from 43 different items of appropriation. These disbursements are a fair

index to the increase in the business of the new Department after July 1, 1903, on account of the bureaus transferred from the Treasury and other Departments of the Government.

ESTIMATES.

The estimates for the Department represent actual needs. They were submitted after the fullest consideration and as a result of repeated conferences with those qualified to furnish information regarding the various matters to which reference is made.

It is fair to assume that Congress, in establishing the Department, contemplated not only the grouping together of certain bureaus then existing and the organization of the new bureaus and offices provided for, but also their proper consolidation and readjustment, to the end that the entire Department, when fully organized, should by expansion into the new field it was created to occupy accomplish all the purposes named in the organic act. Merely to appropriate a sufficient sum for the administration of the several bureaus transferred on July 1, and for a skeleton organization of the new bureaus, would fall far short of meeting those purposes. If the Department is to realize in any considerable degree the expectations of the framers of the legislation creating it and of the great interests it is expected to cooperate with and advance, it must have adequate appropriations. The act establishing the Department was passed late in the last regular session of Congress, and it was impossible to give full consideration to its needs. I most earnestly recommend that the Department be now equipped to do properly and effectively its important work.

A DEPARTMENT BUILDING.

Under date of February 23, 1903, I addressed a communication to the Secretary of the Treasury for transmission to Congress, submitting an estimate for an appropriation for the construction of a building for the Department. I respectfully invite attention again to that communication and reproduce it herewith:

DEPARTMENT OF COMMERCE AND LABOR,
Washington, February 23, 1903.

SIR: I have the honor to request that the following estimate for the construction of a suitable building for the Department of Commerce and Labor be transmitted to Congress:

At the beginning of the coming fiscal year the Department of Commerce and Labor will consist of twelve organizations, transferred to it from other branches of the public service, two new bureaus, and the office proper of the Secretary—in all, fifteen organized offices. These offices will be housed, under present arrangements, in ten or more different buildings. The Census Office is on B street, between First and Second streets NW.; the Coast and Geodetic Survey is on New Jersey avenue, near B street SE.; the Bureau of Foreign Commerce is in the State, War, and Navy building. Between these limits of about a mile and a half east and west, and about one-

third of a mile north and south, are distributed the remaining organizations of the Department.

The Light-House Board and the Bureau of Navigation are at 719–721 Thirteenth street NW.; the National Bureau of Standards on New Jersey avenue, near B street SE.; the Immigration Bureau, the Steamboat-Inspection Service, and the Alaska Seal and Salmon Fisheries in the Treasury Building; the Commission of Fish and Fisheries at Sixth and B streets SW.; the Department of Labor at Fifteenth street and New York avenue NW.; and the Bureau of Statistics at 1333 F street NW. Quarters for the office of the Secretary of Commerce and Labor and for the new Bureaus of Manufactures and Corporations have not yet been chosen. The delay, inconvenience, and expense in the transaction of daily business by so scattered an organization will be evident at once both to Congress and to the commercial and industrial interests of the country.

The annual rent during the current fiscal year for only four of these organizations (Department of Labor, Census Office, Bureau of Statistics, and Light-House Board) amounts to $44,544. Rented quarters are now provided, or soon must be provided, for nine of the remaining organizations in the Department of Commerce and Labor.

On July 1, the Department of Commerce and Labor will employ in the city of Washington about 1,300 men and women. The precise number can not be stated until the new bureaus have been organized.

The present needs of the new Department have been briefly mentioned in order to show the importance of early action by Congress to supply them. In any project for the building which Congress may approve it is earnestly recommended that provision be made for the future growth of the Department, which will accompany the development of the commerce and industry of the United States.

The site to be secured should not only suffice for the structure required to house under one roof the branches of the public service to be assembled in July under the Secretary of Commerce and Labor, but should be ample for extensions of the edifice from time to time, in harmony with original plans, and with requirements of the increasing artistic sense of the people. The building for the Department of Commerce and Labor at the national capital, it is suggested, should be so planned in advance as to be not inferior in convenience or beauty to the structures which commercial and financial institutions in the great centers of American trade are erecting for the transaction of their daily business. It should be designed on a scale large enough to provide for the reasonable growth for some years to come of the various branches of the public service comprising at the outset the Department, and to supply quarters for such other branches of the service as by creation or transfer may hereafter be brought under its jurisdiction.

It should have at least one hall suitable for conferences or Congresses, international or national, which, by invitation of the Government of the United States, have met in this country in the past, and doubtless hereafter will assemble frequently at Washington. To secure light and ventilation, inner courts open to the sky are necessary. The edifice should be fireproof.

Such a department building is needed to meet the requirements of progressive business methods. It is needed to give adequate expression to the country's advance in the art of architecture. It is a proper part of any general project to render more beautiful the national capital. It is in the line, furthermore, of true economy.

The Treasury building cost $7,250,540, but is already inadequate for the needs of that Department, which this year, according to the estimates, will spend $18,894 in rents for outside offices. The State, War and Navy building cost $10,071,916, but the Departments it houses will this year spend $25,260 for rented offices, and more offices must be secured for the coming fiscal year. The Patent Office cost $3,652,705, but this year the Interior Department will be required to spend $80,680 for rented buildings (including $26,680 for the Census Office, transferred to the Department of

Commerce and Labor). The new Post-Office cost $3,305,490, but from the beginning was inadequate for the Post-Office Department, which this year will spend $36,406 for rented offices.

Probably none of the Department buildings mentioned could be enlarged without a departure from original plans so radical as to destroy its symmetry and thus to forbid such enlargement. Had the growth of the business of the country and of these Departments been foreseen, doubtless at the outset larger sites and different plans would have been provided. On the other hand, in the case of the Capitol, built and extended for $17,071,849, increased accommodations in consonance with original plans at a cost of about $6,000,000 are now proposed. In the case of the Library of Congress, recently completed at a cost of $6,920,081, such extensions are also possible.

I earnestly recommend, therefore, that Congress provide for the construction of a building for the Department of Commerce and Labor to cost, exclusive of the site, the sum of $7,000,000.

Very respectfully, GEO. B. CORTELYOU,
Secretary.

THE SECRETARY OF THE TREASURY.

Interest here attaches to the following statement of rentals of the Department of Commerce and Labor for the fiscal year 1904:

Appropriated March 3, 1903:		
Rents, Department of Commerce and Labor, 1903 and 1904	$16,000.00	
Expended to June 30, 1903	2,582.82	
Balance available July 1, 1903		$13,417.18
Transferred July 1, 1903, from the Treasury Department, and from other sources:		
From the Treasury Department, for bureaus transferred		11,640.00
For No. 235 New Jersey avenue SE., for use of the Bureau of Standards		840.00
For the building occupied by the Bureau of Labor		6,750.00
For the building occupied by the Bureau of the Census		26,600.00
Total appropriations available July 1, 1903		59,247.18

The rentals chargeable against the above appropriation for the fiscal year ending June 30, 1904, are as follows:

Location of building.	For what purpose used.	Annual rental.
Willard Building, 513–515 Fourteenth street NW.	Main building of Department	$11,830.00
Emery Building, northwest corner First and B streets NW.	Bureau of the Census	26,600.00
National Safe Deposit Building, corner New York avenue and Fifteenth street (in part).	Bureau of Labor	6,750.00
Builders' Exchange Building, 719–721 Thirteenth street NW. (in part).	Light-House Board, Steamboat-Inspection Service, Bureau of Navigation.	7,600.00
Adams Building, 1333–1335 F street NW. (in part)	Bureau of Statistics	4,539.84
235 New Jersey avenue NW	Bureau of Standards (Laboratory)	840.00
Total rentals for the fiscal year ending June 30, 1904.		58,159.84

For the fiscal year beginning July 1, 1904, the estimate for rents for the entire Department is $75,000, the increase being due to an estimate of $10,000 made by the Director of the Census. A small emergency estimate is also submitted for additional funds to be available should further accommodations be required.

LEGAL ASSISTANCE.

The estimates provide for a solicitor and several assistants. Many contracts, some of them involving large sums of money, are entered into by the Department in the daily course of business. That the interests of the Government may be carefully guarded, these contracts should be scrutinized in every instance by competent law officials. Aside from the matter of contracts, legal ability of the highest order is constantly needed in the interpretation and execution of the numerous laws that affect the operations of the Department. As a measure of economy, and frequently also as a matter of justice, it is important that these laws and the various regulations pursuant thereto should be construed in such manner as to leave no doubt of their proper execution.

To meet the present requirements of the Department in the way of legal assistance an officer of the Department of Justice has been detailed to act as solicitor, but this arrangement is merely temporary. A definite appropriation is strongly recommended in order that the Department may be able to employ its own solicitor and provide the needed assistants. Cases frequently arise involving questions of law that require immediate decision, and it is desirable in such instances to have efficient legal assistance within easy reach. The delay that necessarily accompanies the reference of legal questions to law officers outside of the Department and not subject to its authority often impedes the transaction of public business. The advantages that would accrue to the Department from the creation of a solicitor's office under its immediate control are manifest, and it is hoped that the necessary appropriation will be granted.

SPECIAL INVESTIGATIONS.

Provision is made in the estimates for an appropriation to be expended under the immediate direction of the Secretary for the investigation of trade conditions at home and abroad, with the object of promoting the domestic and foreign commerce of the United States, and for other purposes. Important instruments in the promotion of trade are the agents dispatched from time to time by foreign governments to study commercial opportunities in other countries. Military and naval experts are sent abroad by our Government to report on conditions that are of interest to their respective Departments. In the daily competition of international trade there is even greater need of intelligent

outposts abroad. Special agents are also required in the Department itself to inspect the branches of its services in different localities and to secure uniform, businesslike, and economical methods. The need of such agents in other departments has been met by appropriations, and there is of course a similar need in this Department.

PLANS OF ORGANIZATION.

The determination of those responsible for the organization and administration of the Department to lay its foundations on broad lines and to build thoroughly and conservatively for the future has been very generally understood. In but few instances has there been any criticism of this course, and then only from those unfamiliar with the magnitude of the task of organizing a new department or unmindful of the necessity of making liberal provision for its growth and usefulness. It would have been a dereliction of duty, even in the face of a pronounced demand for immediate action in certain directions, to sacrifice the essentials of sound organization to a desire to make an early showing or to achieve immediate results from ill-considered and ill-timed investigations. The care that has been exercised in the details of organization and the conservatism that has marked the Department's course during the brief period of its existence have been amply justified. It is well to repeat that the act creating the Department received the approval of the President on February 14, 1903; that the first Secretary of the Department was appointed two days later; that until July 1 only elementary details of organization could be considered; that on July 1, by the transfer of bureaus, the Department became the fourth largest of the several executive establishments, and that from that date to the date of this report but five months have elapsed.

PERSONNEL.

Organization under initial appropriations and the estimates for the future have been based on the belief that better work can be obtained from a relatively small clerical force, composed of competent employees paid salaries commensurate with the work done, than from a larger force overpaid in the earlier years of service and underpaid after capacity for intelligent work has been shown. Every competent observer of administrative methods at Washington will, I think, agree that there are many instances where the pay is much higher than in corresponding private employment, the force at times is larger than can be used advantageously, and not infrequently increased compensation comes to be regarded as a necessary incident to service rather than as a just measure of the worth of service. High-grade clerks command good salaries in private business, and the Government can not, and, in fact, does not, retain such in its employ except by paying

equally good salaries. To the Department of Commerce and Labor in its relations to the business community this principle applies with peculiar force.

The civil service regulations have been observed in every detail from the establishment of the Department. Appointments have been made, and will be made, strictly upon merit, whether under the civil service requirements or in cases exempt from such requirements. Upon no other basis can such a Department be conducted so as to meet satisfactorily the demands that will be made upon it.

Among other measures required to realize this high standard the Departmental files must be conclusive, and the papers in all cases must disclose the conditions that warranted the action taken. As far as practicable I desire to do away with confidential files. They are often the resort of the blackguard and the blackmailer. Only such files should be held confidential as the law requires or public considerations demand. Every official document in the Department, whether it relate to appointments, contracts, or other subjects, should be accessible to authorized inspection and should afford a full and satisfactory answer to every proper inquiry.

TRANSFER OF BUREAUS.

The Department has been created for certain general purposes, stated in the organic act. To enable it to carry out some of these purposes bureaus of other Departments and offices existing independently were transferred to it at the beginning of the current fiscal year. Further rearrangement of bureaus and offices among the several Departments should in due season be made if these purposes are to be attained in the simplest and most direct fashion. The Department of Commerce and Labor does not seek growth by the absorption of duties now assigned elsewhere. If, in the opinion of the President, however, or of Congress, as the law may provide, the transfer of bureaus and offices to this Department seems to promise a more efficient administration of public affairs, such transfers will be welcomed. On the other hand, if experience plainly shows that certain duties now allotted to this Department can be better performed under a different control the transfer of such duties will be promptly recommended. The names of the great departments of government indicate clearly the division of Federal machinery that has been regarded as best adapted to efficient administration. The creation of a new executive establishment, charged with the administration of laws that fix the relations of the Federal Government with the business and industrial affairs of the country, should involve the ultimate transfer to it of various duties, which, in the absence of such an establishment, have been performed under the direction of officers chosen primarily for purposes altogether different.

When the transferred bureaus were brought together under this Department, many questions arose which required not only a definition of their relations to their new conditions, but in a number of cases a determination of jurisdiction as between the Department of Commerce and Labor and the Departments from which the transfers were made. To remove uncertainty, opinions were obtained from the Attorney-General for the guidance of all concerned. These opinions form a valuable body of authority, and have enabled the organization of the Department to proceed on lines that make for efficient and business-like administration.

Under the Department's plan of organization every opportunity will be afforded for the development in the largest degree of its various bureaus, and the chiefs will be given the greatest latitude and authority consistent with proper supervision by the Secretary. The bureaus will be expected, however, to keep in view the interests of the Department as a whole, and to work together loyally and harmoniously for the general good. In the many affairs concerning more than one office, in the matter of disbursements, appointments, and other features involving the general policy of the Department, the immediate responsibility for action will rest with the head of the Department.

At the very beginning of the work of organization embarrassment was occasioned by the inappropriate names of some of the bureaus and by an illogical assignment of duties. As rapidly as it has been thought advisable to make changes in these regards they have been made. While there has been decided progress in these directions, much still remains to be done, dependent upon such rearrangement of work as experience may show to be wise. At present an anomalous situation exists in regard to the designation of the Bureau of the Census, the Bureau of Statistics, and the new Bureau of Manufactures. In both the Bureau of the Census and the Bureau of Statistics considerable work is now performed on some of the lines indicated for the Bureau of Manufactures. The name Bureau of Statistics does not properly describe the functions of that Bureau. The ultimate purpose is to have the various subdivisions of the Department so designated and such assignments made to them as will give public notice of their duties and bring about greater uniformity and efficiency.

CONCENTRATION OF MARINE BUREAUS.

The Light-House Establishment, Bureau of Navigation, Steamboat-Inspection Service, Coast and Geodetic Survey, Bureau of Fisheries, and Alaskan Fisheries Service have already been transferred specifically to the Department. Various duties relating to marine affairs, as the regulation of anchorages, regattas, boarding of vessels, and the enforcement of the St. Marys River rules, have also been assigned to the Department. The debates in Congress disclose the purpose to

give the Department general jurisdiction over all matters relating to merchant shipping. While each of the marine services now in existence has its specific duties, there are various points at which the work of one touches or affects another. In such matters, the best results can be obtained only by joint action or by the exercise of an immediate and constant supervision over all. Two plans have been considered, the first to establish a marine board composed of the heads of all the bureaus concerned in marine affairs, the second to designate one officer of higher rank than a bureau chief as the supervisory authority, under the Secretary.

While committees and boards are useful in legislative and deliberative affairs, competent students of government are agreed that in the administration and execution of laws the most satisfactory results can be obtained by fixed responsibility in one competent head. This will be the principle adopted wherever possible in the administration of the branches of the Department. There is a natural division between marine affairs and land affairs. The appointment of an assistant secretary of the Department will permit a concentration of control over marine affairs in a bureau of marine affairs, from which satisfactory results are anticipated.

PURCHASE OF SUPPLIES.

The purchase of supplies for the Department and its various services has been carefully studied. A more businesslike method of buying is being introduced, and it is believed that a substantial saving in this direction can be accomplished. The plan of contracting for supplies in sufficient quantities to meet the requirements of the entire Department will be followed wherever practicable, in order to obtain more favorable prices than can be had where the bureaus purchase separately. In order to carry out the plans with regard to purchasing, the various contingent funds of the bureaus, except so far as they provide for supplies that are purely technical—such as scientific instruments and apparatus—should be consolidated into a single fund to be controlled by the Secretary's Office. The creation of a general contingent fund in accordance with this plan will enable the Department to purchase supplies in a more systematic and economical manner and under a uniform method of accounting.

ACCOUNTING.

Steps have been taken to systematize the methods of accounting employed in the several bureaus in order to bring them into harmony with each other and to reduce as far as possible the large amount of work that is involved in the adjustment of the accounts, to prevent delay in the settlement of accounts, and to avoid merely perfunctory signatures.

The manner of accounting for the expenditure of the various appropriations provided for the Department and its various services is being carefully studied with the object of still further safeguarding the disbursement of public funds.

TELEGRAPH AND TELEPHONE SERVICE.

The Department has been equipped with an efficient telegraph and telephone service. As this service is in operation by night as well as by day, time and expense are saved in dispatching the business that has to be conducted by wire. The existence of a night service distributes work in such manner that it can be conducted with greater accuracy and with the least possible delay. The telephone equipment is also fully justified, for at the average department rates the pay of one messenger is about equal to the rental of 28 telephones.

There will be increasing demands upon this service. Agents in the field, whether engaged in investigations at home or abroad, will have frequent occasion to use these facilities, and it would hardly seem necessary to urge the importance of a thoroughly trained and efficient force of this kind for duty both day and night in a branch of the Government devoted to commerce and industry.

While existing laws do not permit the introduction of certain modern appliances, the Department has from its organization made use of such as were available. The best tools are the cheapest. The Department's equipment of mechanical appliances must be at least equal in quality to the equipment of the best private business establishment, if Government work is to be done as promptly and economically as private work.

LIBRARY.

There are about 90,000 volumes in the various bureau libraries. The collections are devoted wholly to the special needs of the bureaus, and are, for the most part, technical or scientific. The Light-House Establishment has, in addition to its office library, a circulating library of about 50,000 volumes, composed of standard and current literature. This collection is kept in circulation among the light-houses, thus affording to the light-house keepers opportunities for study and recreation they could not otherwise have, owing to their isolation.

It is intended to coordinate all library work and centralize it under a departmental librarian as far as may be consistent with the special needs of the different bureaus. Each bureau will have a thoroughly equipped working library, systematically classified. From the central departmental library full information can be obtained about all bureau collections and in regard to special subjects relating to the work of the Department.

The Department is cooperating with the Library of Congress, and will use, as far as possible, its resources.

This method of organization will promote economy, reduce to a minimum duplication of material, and make immediately available to every branch of the Department the material at its command.

DEPARTMENT SEAL.

An appropriate seal has been adopted and regulations promulgated to secure a uniform and consistent use of it throughout the Department. Each bureau has been provided with a seal similar in design to the great seal of the Department, and the use of various seals of dissimilar patterns has been discontinued.

STATISTICAL WORK.

One of the most important branches of the Department's work is that of statistics. By the organic act this new Executive establishment is made the statistical department of the Government. On May 15, 1903, a commission on statistical work was appointed for the purposes outlined in the following letter:

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, May 15, 1903.

MY DEAR SIR: Section 4 of the act to establish the Department of Commerce and Labor provides that "the Secretary of Commerce and Labor shall have control of the work of gathering and distributing statistical information naturally relating to the subjects confided to his Department: and the Secretary of Commerce and Labor is hereby given the power and authority to rearrange the statistical work of the bureaus and offices confided to said Department, and to consolidate any of the statistical bureaus and offices transferred to said Department; and said Secretary shall also have authority to call upon other departments of the Government for statistical data and results obtained by them; and said Secretary of Commerce and Labor may collate, arrange, and publish such statistical information so obtained in such manner as to him may seem wise.

I have acquainted the heads of the Departments and of the several bureaus and offices concerned with my desire to appoint a commission to assist me in carrying out these provisions of law and other features of the organic act in any way relating to them, and have received their assent to the appointment of the commission in advance of the actual transfer of some of the bureaus and offices. I have therefore appointed the following commission:

Mr. Carroll D. Wright, Commissioner of Labor, chairman.
Mr. S. N. D. North, Census Office, vice-chairman.
Mr. James R. Garfield, Commissioner of Corporations.
Mr. O. H. Tittmann, Superintendent Coast and Geodetic Survey.
Mr. George M. Bowers, Commissioner of Fish and Fisheries.
Mr. F. P. Sargent, Commissioner-General of Immigration.
Mr. O. P. Austin, Chief of the Bureau of Statistics.
Mr. Frank H. Hitchcock, chief clerk, Department of Commerce and Labor, secretary.

It will be the duty of this commission to investigate and report, for the consideration of the Secretary, what rearrangement, by transfer or otherwise, in the work

now assigned by law to any of these bureaus and offices will result in an improvement of the service; what field work, if any, now being conducted by any bureaus or offices, can be consolidated or dispensed with; what reports, if any, now published, can be consolidated or dispensed with, with a view to the elimination of any duplication now existing in the work of these bureaus; to define clearly the field and functions of each bureau or office in such manner that no one shall encroach at any point upon any other; and generally to make such recommendations as may commend themselves to the commission for the orderly and scientific readjustment of the work of the several bureaus and offices of the Department of Commerce and Labor.

The report of the commission may be made from time to time, upon separate branches of the investigation, if desired; but its final report should be submitted at the earliest practicable date.

It would greatly facilitate the proper organization of the Department if the commission were to meet at an early date, as it might then be possible to accomplish substantial results before July 1.

Very truly yours,

GEO. B. CORTELYOU,
Secretary.

The Commission has made a careful study of the various lines of statistical work carried on by the several bureaus, and has recommended certain changes in the way of readjustment and consolidation that it is believed will increase the efficiency of this work.

The Department aims to furnish the business world with more prompt, more complete, and more reliable statistical reports upon the various subjects of commercial and industrial interest. Special efforts are being made to extend its facilities for supplying foreign trade information, and more active assistance will be required from the consular service. The relation of this service to the new Department is one of its pressing problems, which in the immediate future must be the subject of administrative as well as legislative consideration. Essentially commercial officers, they should play a vital part in the extension of our foreign trade. By careful supervision, and timely and helpful suggestions, reports of a more practical nature, and of greater usefulness to our exporters, than many of those hitherto furnished can be obtained.

COOPERATION WITH THE DEPARTMENT OF AGRICULTURE.

In planning measures for the development of American commerce it is the purpose of the Department to devote itself impartially to the various interests concerned in that development. All possible means will be employed for the extension of our export trade in products of the farm as well as in manufactured articles. Wherever possible the cooperation of the Department of Agriculture will be sought, in order that these two branches of the Government service may work together for the benefit of the American farmer. It is highly important that the active measures taken by the Agricultural Department to increase the productivity of our farms should be supplemented in every possible way by efforts to provide a profitable market for their produce.

DIVISION OF FOREIGN TARIFFS.

In addition to the measures that have been taken for the reorganization and improvement of existing branches of the statistical service, it is proposed to establish an office for the collection and distribution of foreign-tariff information, this being one of the directions in which the Department's work can apparently be extended with great advantage. The estimates propose an appropriation of $9,220 for a division of foreign tariffs.

Nations are inclined to regulate their commercial intercourse by means of a double system of tariffs, permitting preferences through commercial treaties. The current agitation in Great Britain for a departure from traditional policy in order to increase commerce between the members of the British Empire may have marked effects upon American trade and incidentally upon American labor.

The industrial and economic facts which accompany such movements must be closely, intelligently, and unremittingly watched. A few competent employees, acting directly under the head of the Department, will suffice for this purpose. From the small expenditure proposed excellent results may be obtained. There is at present no Government office in the United States engaged systematically in the work of collecting information regarding foreign tariffs and making that information available to our exporters. The Department has received frequent inquiries for such information and has been impressed with the importance of providing an agency to supply it.

PUBLICATIONS.

An effort is being made to secure a prompter issue of the Department's publications without impairing their accuracy. The value of Government documents depends essentially on their presentation of current conditions, rather than the reproduction of facts and figures with which an energetic country is already acquainted. Bulletins containing the rulings, regulations, and notices of the Department, and also statistical and other information of immediate interest to the public, will be issued with the least possible delay.

Among the more comprehensive publications now in course of preparation, and soon to be issued, is a history of the Department, including a compilation of the laws with the administration of which, directly or indirectly, it is charged. The Bureau of Corporations is also preparing several publications that will undoubtedly be serviceable to Congress and to those concerned in the special work of the Bureau.

CHARACTER OF REPORTS.

The Department was not established to control the energies of the people. By furnishing them with needed information it can help intelligence and self-reliance to put forth efforts in trade with the best

results. This will be one of its chief aims. Conditions exactly as they are found will be shown in a true and impartial light. Statements of facts and statistics issued by this Department will be nonpartisan, not only in the usual political sense of the word, but in the broader sense of freedom from the bias of preconceived theories or of predilections toward or against individuals, associations, or organizations. By carrying out this policy the various branches of the Department acting as a single organization can render far greater services to labor and to capital than could be had from independent offices specifically devoted to particular interests. The facts of modern industrial and commercial life are too intricate and interdependent to be fairly stated even by the impartial specialist if regarded from a single point of view.

While the responsible officers of the Department would fall short of their duty if they failed to state their conclusions in exact accordance with information obtained, and to make fearlessly the recommendations demanded, the information itself must be so fully and fairly set forth as to carry conviction of the accuracy of such conclusions, or to permit ready demonstration of error, if such has been made.

A commission has been appointed within the Department to revise statistical methods. Lack of coordination and harmony has hitherto led to confusion, duplication, omission, and other errors in results, and to extravagance in administration. Improved methods will be introduced as rapidly as practicable.

PRINTING OF BLANKS AND FORMS.

The printing of the vast number of blanks and forms required is another problem to which careful thought has been given. Under the present conditions the cost of such printing is believed to be unnecessarily high. This expense can be reduced and at the same time the business of the Department facilitated by a judicious consolidation and elimination of many blanks. An improved method of handling blanks and of distributing them to the numerous officials of the Department stationed throughout the country is being introduced with the object of securing a speedier and more accurate service. The distributing agencies of the several bureaus are being consolidated into a single organization, with great advantage to the work.

BUREAUS OF THE DEPARTMENT.

The bureaus and offices transferred from other Departments on July 1 have, as a rule, made their annual reports for the past fiscal year to the heads of the Departments with which they were formerly connected. Recommendations for the current fiscal year, however, have been made by several of these bureaus and offices in reports to this Department. Such study as I have been able to give to these reports

and to the general methods of the transferred bureaus convinces me that legislation will be desirable in a number of instances; but it is usually wise to await the experience gained in the execution of existing law before recommending additional legislation. If practicable, specific recommendations on these matters will be made during the coming session of Congress. I respectfully invite attention to the reports of the several bureaus printed separately.

BUREAU OF MANUFACTURES.

The organization of the Bureau of Manufactures has been necessarily postponed in the absence of adequate appropriations. No time has been lost, however, as the work of this Bureau in some respects will resemble certain phases of the present duties of the Bureau of the Census and the Bureau of Statistics. Some readjustment of work will be required to secure the best results from these branches of the service, and the plans for redistribution of duties have not yet been fully formulated. These plans, however, will be ready as soon as Congress shall have provided the funds with which to organize a new bureau. Under present conditions any work assigned to it could be carried on only by the detail of clerks from other branches of the Department, and no clerks are available for that purpose.

BUREAU OF CORPORATIONS.

It is the duty of the Bureau of Corporations to gather information on the subject of interstate and foreign commerce, to investigate the organization, conduct, and management of corporations and joint stock companies engaged in such commerce (other than common carriers subject to the jurisdiction of the Interstate Commerce Commission), to report the results of such investigations to the President through the Secretary of Commerce and Labor, and to compile and publish useful information concerning corporations engaged in interstate and foreign commerce, including insurance companies.

As an aid to investigation, the Commissioner of Corporations is given like powers to those granted the Interstate Commerce Commission.

Since the organization of the Bureau on February 26, 1903, exhaustive studies have been undertaken in the following fields:

1. A systematic study of the law creating the Bureau.
2. The general subject of interstate commerce and the powers of the Federal Government in relation thereto.
3. The decisions of the Federal courts relating to corporations engaged in interstate commerce which are subject to the jurisdiction of the Bureau.
4. The jurisdiction and powers of the Interstate Commerce Commission.
5. The decisions of the Federal courts in relation to trade conspiracies, monopolies, and combinations in restraint of trade.

6. The corporation laws of the various States and Territories, particularly those relating to the annual reports and the returns for taxation purposes required from such corporations.
7. The methods of taxing corporations in each State and the decisions relating to the taxation of interstate commerce.
8. The effect of industrial combinations upon the prices of the commodities sold by such combinations, the effect of tariff duties upon the prices of commodities subject to such duties, and the reasons for the difference, if any exists, between the domestic and foreign prices of commodities manufactured by the protected industrial combinations of this country.
9. The powers of the Federal Government in relation to insurance companies.

From a preliminary study, it became apparent that the public records of States and Territories, the reports of special committees appointed under State or Federal authority, the files of certain Government offices, and various commercial and industrial publications contained a fund of valuable information on the subjects to be investigated. This information is being brought together, analyzed, and properly indexed, in order that the facts already known may be utilized in planning more specific inquiries.

Results thus far obtained show that much fuller information has been given in the past than is generally supposed. The knowledge already acquired from various sources regarding particular corporations will be of decided value in determining what further information should be required. By a proper utilization of the facts at hand unnecessary inquiries can be avoided.

The field of work that lies open to the Bureau is almost unlimited in extent, and it is believed that if proper means are made available results of far-reaching consequence can be accomplished. Since the 1st of July the Bureau's operations have been extended so rapidly that the special appropriation provided is now practically exhausted. In order that the investigations already begun may be effectively completed and the information gained be utilized to the best possible advantage, a liberal addition to the present appropriation should be granted.

Appropriations for the Bureau should carry with them ample authority for the employment of special attorneys and special examiners possessing the qualifications necessary to meet particular exigencies in the work. For this reason it is strongly urged that future appropriations, in so far as they relate to special attorneys and special examiners, be made in the form of a lump sum, with such limitations only as are essential to good administration.

The creation of the Bureau was viewed by some with alarm, or at least with suspicion. It was feared that the powers granted might be hastily or inadvisedly used to the injury of legitimate enterprise. No such purpose actuated the framers of the law; no such purpose will control its administration.

Many corporations have been granted important privileges by the public, and some of these corporations, through consolidation of capital, have acquired extensive influence in the industrial affairs of the country. Such privileges, if used improperly, not only retard the progress of industry, but frequently breed corruption in politics. The legislation creating the Bureau of Corporations was the expression of a popular belief that further safeguards should be provided for the regulation of business enterprises to which special privileges have been granted by the people. Publicity will disclose unfair dealing, dishonesty, and corruption; but if properly enforced it will not disclose to trade competitors the fruits of individual thrift and initiative, nor permit in any other manner the invasion of private rights.

BUREAU OF LABOR.

THE RELATIONS OF LABOR AND CAPITAL.

The Department is empowered to acquire and diffuse among the people of the United States useful information on subjects connected with labor, in the most general and comprehensive sense of the word, especially regarding its relation to capital, such as the hours of labor and the earnings of laboring men and women; the means in general of promoting their material, social, intellectual, and moral condition; the elements of cost, or approximate cost, of products; the comparative cost of living, and the kind of living; the articles controlled by trusts or other combinations of capital, business operations, or labor, and the effect such trusts or other combinations have on production and prices; the causes of and facts relating to all controversies and disputes between employers and employees.

Capitalists and wage receivers are to be treated on an equality, for in these matters relating to labor and capital and to their respective representatives the Department must stand in the position of an educational office, collecting and publishing such information as will enable each party to understand more fully the prevailing conditions.

The Department has no executive functions relative to the settlement of labor disputes. It can not interfere on behalf of either employer or employee in controversies arising between them.

Whatever enables either party to secure necessary information falls within the authority of law. That authority does warrant the Department in publishing any information drawn from conditions in this or in other countries which will be helpful in bringing about fuller knowledge and better understanding. Employer and employee are dependent upon each other, and the recognition of the welfare of both, and of the means of assisting in securing that welfare, will be assiduously cultivated. All possible measures of an educational nature will be employed to induce the representatives of labor and capital to

conduct their affairs on a basis which shall not interfere with the general welfare of those not engaged in the disputes. This general policy must commend itself to the wisdom of employer and employee alike, as it is in the interests of both.

A large part of the office force, as well as of the field force of the Bureau of Labor, has been engaged during the past year in the collection of data for the eighteenth annual report of the Bureau (the report for 1903) and in its preparation. This report presents the results of an extended investigation into the cost of living of workingmen's families and the retail prices of staple articles of food used by such families. That part of the report which relates to retail prices is the first extended investigation of the kind that has been made in this country. The previous price studies, covering a period of years, have dealt solely with wholesale prices, which of course do not represent accurately the cost to the small consumer.

The second annual report on the course of wholesale prices was made in the Bureau's bulletin for March, 1903. While it is considered advisable to continue this index of wholesale prices, the data relative to retail prices contained in the eighteenth annual report should be used in preference to wholesale prices in any study of the cost of living of workingmen's families.

In addition to the preparation of the eighteenth annual report and other work done by the Bureau, its bulletin has been issued regularly every other month. Each number of the bulletin contains, in addition to one or more special articles, timely data relative to agreements between employers and employees, digests of recent reports of State bureaus of labor statistics, digests of recent foreign statistical publications, court decisions affecting labor, and laws of various States relating to labor. As the result of investigations in progress or completed, forthcoming bulletins will contain the following special articles:

Labor Unions and British Industry.
Labor Conditions in Australia.
Labor Conditions in the Philippine Islands.
The Revival of Handicrafts in the United States.
Trade Union Movement among the Coal Mine Workers of the United States.

Other investigations are being carried on by the Bureau, and the results will appear either in the bulletins or in special reports. Among the latter may be mentioned a report on restriction of output by employers and employees in the United States, Great Britain, and the continent of Europe; a report on the labor of children in the principal industrial States of the Union; a report on coal-mine labor in Europe; and also a compilation of the labor laws of the United States, which revises and brings down to date the second special report of the Bureau, published in 1896. Reports have already been issued upon the condition of the laboring classes of the Territory of Hawaii.

Active work on the preparation of the nineteenth annual report of the Bureau and the collection of data therefor was begun some months ago, and rapid progress is being made. This report, which should be available—in summary form, at least—in the spring of 1904, will comprise the largest and most representative collection of data relative to wages ever undertaken. The period covered will be the years from 1890 to 1903, inclusive, and it is expected that every important manufacturing industry and every large industrial center in the United States will be adequately represented.

One of the first official acts of the Secretary of Commerce and Labor on the day the Bureau of Labor was transferred to this Department was to direct the employment of a special agent to make an investigation in England as to the effect of trade unionism on British industries. The agent's report, which is to appear in an early issue of the Bulletin, will commend itself to the attention of those interested in this subject.

In view of the attention which the subject of trade unionism commands, and the efforts made by employers and employees to improve their relations, to prevent strikes and other industrial disturbances, and to provide a ready and certain method by which disagreements can be adjusted, it is believed that this report, explaining the methods adopted in Great Britain and the lessons they teach, will prove a valuable contribution to the literature of sociology and may offer some suggestions which can be profitably adopted in our own industrial system.

The Bureau of Labor has rendered effective service in its special field. The Department will utilize to the fullest extent the experience that has been gained in this important Bureau, and will seek to make more and more available the information it can obtain and to secure larger results from its work. Not only is there at present a bureau doing work pertaining exclusively to labor, but it is proposed to make every other bureau in the Department do its share, so far as its organization will permit, to "foster, promote, and develop * * * the labor interests, * * * of the United States." The Department's statistics on labor, as well as its statistics on other subjects, will be gathered fairly, given out fairly, and as far as possible will be made to represent accurately conditions found to exist. Whatever rearrangement may be found necessary in any of the duties now assigned to the Bureau, the great interests of labor and of industry in their broadest sense will be subserved.

The new Department should not be expected to do impossible things. If it can be helpful to any considerable extent in improving existing relations as between employer and employee; if its publications can furnish facts from which there may come fuller understanding; if, having gained the confidence of the people, it can, from time to time,

point the way to better feeling and broader views as between contending interests, it will accomplish one of the most beneficent results of its organization.

LIGHT-HOUSE BOARD.

The establishment of a light-house system properly received the attention of the founders of the Republic. Letters signed by Washington, Jefferson, Hamilton, Gallatin, and others, testify their interest in the subject. Among the first appropriations made were those for aids to navigation. While it was recognized that commerce meant prosperity to the country, it was equally recognized that the light-house meant safety to commerce. As light-houses and other aids to navigation have been multiplied, the premiums on marine insurance have been diminished.

When the present Light-House Board was organized in 1852, Congress adopted a policy which, when carried fully into effect, will equip the coasts of the United States so thoroughly with lights that no vessel off our shores will be out of sight of a light, or out of hearing of a fog signal. Harbor lights and fog signals show the sailor the way in and out of port. The whistling buoys, the lighted buoys, the ice buoys, the can, nun, and spar buoys do in a small way what the light-houses accomplish for larger areas. The various instrumentalities have been brought to such a degree of efficiency that navigation is from year to year made easier and commerce safer.

Demands are being made by commerce and navigation for light-houses and other aids to navigation in the waters surrounding our insular possessions. The Porto Rican light-house service has been taken over and is now being administered by the Light-House Establishment. The Hawaiian Islands are urging that their light-house service be administered by the Federal Government. The Philippines are requesting similar assistance; and Guam and the Midway Islands also present claims for a proper light-house service. What has been done to make Alaskan commerce safer and easier they wish to have repeated for them. They insist that such lights and aids to navigation as they already possess shall be brought up to our standard, and to do this thoroughly and economically they claim properly that their light-house service should be administered by the Light-House Establishment. This matter is commended to the serious attention of Congress.

The Department invites attention to the need of meeting the estimates for the maintenance of the Light-House Establishment with full appropriations. The amounts asked are urgently required. Any diminution of them will retard the operations of the establishment to just that extent. The increase in the number of aids to navigation since the last appropriations occasions the increase in the requirements of the establishment. The estimates have been carefully framed and are

based on an aggregate of items. Hence the reduction of the estimates will require the abandonment of items to the extent of the reduction.

Especial attention is invited to the several estimates for the cost of building light-house tenders. These vessels are the eyes and hands of the establishment. By and with them the quarterly inspections are made, the personnel of the establishment is kept up to its standard, the 1,550 light keepers are paid quarterly, supplies of oil, fuel, and other necessaries are delivered at the light stations, and repairs of old stations and the construction of new ones are made. The lack of sufficient light-house tenders has made it necessary to do certain work by contract which otherwise would have been done by employees of the Department with greater promptitude and at less expense. Attention is invited to the estimate for a light-house tender to be used in Porto Rican waters, especially as it will be necessary to use her in connection with the aids to navigation in Guantanamo Bay, Cuba, where the naval coal station has just been established.

The Light-House Establishment is now limited by law to 16 districts. The Light-House Board in its annual report has set out the need for two more districts, one to embrace Alaskan waters and the other to embrace Porto Rican waters, as well as the aids to navigation now in Guantanamo Bay, Cuba, and to be hereafter established there. The aids to navigation in Alaskan waters are now looked after by the inspector and engineer of the Thirteenth Light-House District, who have their headquarters at Portland, Oreg., or about 1,800 miles away from some portions of their work. This great distance makes it very difficult, and in some instances impossible, to give that careful supervision to the work which the interests of commerce and navigation require. The establishment of a new district, with headquarters for the inspector and engineer near its center, will do much for the increased convenience and safety of the growing commerce in these waters. The aids to navigation in Porto Rican waters are now, and those in Guantanamo Bay will be, under the supervision of the inspector and engineer of the Third Light-House District, whose offices are on Staten Island, New York, some 1,500 miles away from this work. The establishment of a new district will enable the Board to place an inspector and engineer, say, at San Juan, P. R., where they would be within about 100 miles of their work in Porto Rican waters, and much nearer Guantanamo Bay than is now the case.

The Board, in its estimates for special works has repeated many estimates which it has submitted from year to year, in some instances for many years past. In every case the necessity for such work has been determined by careful examination after repeated demands therefor by commercial interests. The estimates have been carefully made by the light-house district officers and thoroughly verified by the Light-House Board in its committees and by its executive officers. It remains

for Congress to decide whether it will grant these demands of commerce, and to determine the order of their importance. This Department, however, invites particular attention to those special works which are required to light and make useful by night the channels cut by Congressional authority, or which are now nearly finished, and to those for which authorized contracts have been made, but to finish which additional appropriations are needed.

BUREAU OF THE CENSUS.

The Bureau of the Census, transferred to this Department from the Department of the Interior, had completed one year under its permanent organization on the date the transfer was effected. The operations of that year, as described in the report of the Director of the Census to the Secretary of the Interior, indicate gratifying progress with the special investigations assigned to the Census Office by Congress to be taken up upon the completion of the main reports of the Twelfth Census.

Since the transfer the Bureau has issued several additional publications, including the Statistical Atlas of the Twelfth Census and the Special Report on Employees and Wages in Manufacturing Industries. Other important reports are on the verge of completion. The Bureau has also entered actively upon the work of compiling the census of the Philippine Islands, in accordance with the order of the President.

At my request the Director has submitted a supplementary report, which presents in some detail the plans already made or now under consideration for the future work and usefulness of the permanent Census Bureau.

This report makes it evident that Congress acted wisely in placing the Census Bureau on a permanent basis. All the advantages anticipated from that action, including more thorough preparation for the Federal decennial censuses, their earlier compilation and publication, their greater comparability with each other, their greater accuracy and continuity are destined to be realized. But more than this, the establishment of a permanent office has opened up unexpected opportunities for beginning much-needed statistical reforms all along the line which are certain to result not only in the avoidance of duplication in Federal statistical work but also in bringing into closer harmony with Federal statistics a great body of statistical material collected in different States and municipalities.

Much of this material relates to subjects closely akin to those covered by the census reports, but it has heretofore been compiled on lines so diversified and so dissimilar to those of the census that it has been impossible to coordinate the results. Undoubtedly it will take many years fully to accomplish coordination and collaboration between the Federal census and the many State bureaus engaged in similar statistical work; but the Director's report shows that substantial prog-

ress has already been made in several directions; and I can not resist the conviction that as this movement for the standardization of all classes of official statistics proceeds and develops, it will come to be recognized as marking one of the greatest and most practical reforms in official statistics.

Still another great advantage arising from the establishment of the permanent Census Bureau, and from its transfer to a department containing other bureaus engaged more or less in statistical work, has impressed itself upon my mind from the first. The Census Bureau is a purely statistical office, employing a body of experts whose main business it is to study statistics and statistical methods, with a view to their improvement and perfection. To this work they give their undivided attention, and it is reasonable to believe that a steady improvement in the character of official statistics will result from the concentration in such an office of as much of the statistical work of the Department, no matter what its immediate character, as can be centered there without interference with the administrative duties of the other bureaus.

In accordance with these views, and acting under the authority conferred by the organic act of the Department, I have already transferred from the Bureau of Labor to the Bureau of the Census the compilation of the annual statistics of cities of 30,000 population and over, provided for by the act of Congress approved July 1, 1898, and from the Bureau of Immigration the compilation of the statistics of immigration.

The first branch of work thus transferred was so similar in its character to work imposed upon the census by law, as to make it imperative both as a matter of economy and for the sake of uniformity, that one office should compile the two reports. My action in making the transfer was taken after a conference with and upon the joint recommendation of the Commissioner of Labor and the Director of the Census.

The purely scientific work of the Census Bureau is closely related at many points to the practical affairs of the nation. A striking illustration of this fact is found in the current investigation of the Bureau concerning the receipts and expenditures of cities. The schedule prepared for collecting data relating to this subject has become the pivot around which is now centering a well-organized movement for securing a uniform classification of municipal accounts and a more intelligent presentation of them. A conference for the critical study and perfection of the schedule of municipal receipts and expenditures, recently called by the Director of the Census, brought together a large gathering of the representatives of the offices charged with the administration of finances in our greater cities, and of others interested in the more general adoption of improved methods of municipal accounting.

The conference in many ways expressed its deep interest in the work of the Census Bureau, and bore earnest testimony to the practical value of that work in the field in which its members are most interested. These investigations of the Census Bureau promise to give great impetus to the extension of publicity in municipal affairs and, by sympathetic influence therewith, to promote and extend the movement for whatever may be determined to be a proper publicity of corporate management, with which this Department is so deeply concerned.

The transfer of the compilation of the immigration statistics to the Census Bureau has long been advocated by statisticians, and will bring immigration statistics into proper harmony with the population statistics of the Federal Census. It will enable the Department to present them with the fuller detail and analysis which have become imperative, in view of the rapid increase in immigration and its changing character. The transfer was made with the hearty approval of the Commissioner-General of Immigration, and the compilation of these statistics by the Bureau of the Census will begin on January 1 next.

I desire here to call attention to the recommendation made by the Commissioner-General of Immigration and the Director of the Census that provision at once be made by law for securing the proper statistics of foreign-born emigrants from this country. No satisfactory statistical statement of immigration and its permanent effect upon the population of the country can be compiled unless the statistics of immigration are accompanied by the corresponding statistics of foreign-born emigration.

It is my intention, from time to time, as opportunity presents itself, to transfer other important branches of statistical work to the Bureau of the Census. As an illustration of how widely useful such a recognized center of statistical work can become, and how it may be possible and desirable for all of the departments of the Government to utilize its services in their own statistical compilations, I may refer to the recent request of the Civil Service Commission, which I have approved, that the Bureau of the Census shall compile the statistics of the classified service of the United States, collected under the order of the President dated March 31, 1903.

Heretofore there has been no bureau of the Government to which such distinctive and exclusive functions could be assigned, and the quality and the value of our governmental statistics have suffered correspondingly in comparison with those of other nations. But with this conception of the true function and the proper development of a permanent Census Bureau it will necessarily become, in a comparatively short time and under proper direction and management, the great statistical laboratory of the United States Government, worthy to take rank with the best statistical offices maintained by European governments.

The success of this general plan for the development of a Federal laboratory of statistics depends upon its organization upon a strictly nonpartisan basis, such as will command universal confidence. So organized and carried on, the Bureau of the Census will very quickly come to be recognized as belonging strictly in the category of the scientific bureaus of the Government, and as one of the most useful and important of them.

COAST AND GEODETIC SURVEY.

The Coast and Geodetic Survey is charged with the duty of surveying the coasts under the jurisdiction of the United States for the purposes of commerce and defense. Its work has recently been greatly augmented by the extension of the operations to Porto Rico, the Hawaiian Islands, and the Philippine Islands. Much has already been accomplished in these fields without material increase in the facilities of the Bureau.

The greater draft of the vessels at the present day, the growth of the merchant marine, the enlargement of the Navy, and the requirements of the fleets in maneuvers off our coasts necessitate a thorough revision in many localities where the charts are based upon surveys of earlier days, when light draft and comparatively small vessels were in use. The demand for surveys from these causes is increasing.

The development of Alaska with its thousands of miles of but partially known waters taxes to the limit of its capacity the force available for such work. The fixing of the boundary between this Territory and British America will probably result in a demand for the service of many of the experts of this Bureau in the work of surveying and marking the boundary as defined by treaty, in accordance with the decision of the Alaskan Boundary Tribunal.

On the acquisition of the Philippine Islands and the extension of the work of the Survey to include them, by act of Congress, surveys were immediately begun, and a large amount of valuable work has been accomplished. The Philippine Commission has cordially cooperated with the Bureau. Many geographical positions have been determined, and surveys have been made of the principal harbors and anchorages. A rapid extension of the triangulation of the islands is urgently needed, not only for the purpose of hydrographic surveys and as a basis for the cadastral surveys now under contemplation by the Commission, but also as a basis for the scientific surveys necessary to develop the physical resources of the islands.

BUREAU OF STATISTICS.

The work of the Bureau of Statistics now embraces statistical inquiry regarding the commerce of the world. Beginning in 1866, its work was directed merely to the compilation of statements of the

foreign commerce of the United States. These statements showed our imports, with the countries from which they came, and our exports, with the countries to which distributed. In the earlier history of the Bureau its publications consisted of a brief monthly statement of imports and exports, classified by principal articles, and an annual volume entitled "Commerce and Navigation," that showed the countries from which the imports of the year were received and to which the exports of the year were sent, together with the nationality of the vessels in which they were transported. With the development of commerce the monthly statement was gradually enlarged, and at the present time shows in each issue not only the countries from which the principal imports are brought and to which the principal exports are sent, but also the total imports from and exports to each country of the world, month by month, and for the accumulated months of the current year, compared with the corresponding months of the two years immediately preceding.

The annual volume of Commerce and Navigation has been enlarged so as to show not only the detailed movements of the year, stated by articles and countries, but in a second volume the yearly imports and exports of every article passing to or from each country during a period of ten years.

Statistics regarding the internal commerce of the United States form at the present time an important feature of the Monthly Summary of Commerce and Finance. These statements show in detail the commerce of the Great Lakes, the concentration at interior points of the principal articles forming the internal commerce of the country, and the movement from these points toward the seaboard; also, as far as practicable, our coastwise commerce in some of the more important articles.

Trade with the noncontiguous territory of the United States is also treated of in the Monthly Summary and annual volume; the articles brought into the United States from each of the noncontiguous territories under its control, and the shipments from the United States to those territories, are shown in detail by articles, quantities, and values, as are also the imports and exports of these territories in their trade with foreign countries.

Special statements regarding commercial conditions in leading countries, as well as the world's production of the principal articles entering into national and international commerce, are also published from time to time in the Monthly Summary. Besides supplying much useful information to those engaged in commerce with foreign countries, these statements are of interest to educational institutions, and especially to students of economics.

Reports from the United States consuls in all parts of the world regarding commercial conditions in the countries where they are

stationed are also published daily and distributed by the Department to the press and to the commercial organizations of the country. This work, formerly conducted by the Bureau of Foreign Commerce of the State Department, was transferred to the Bureau of Statistics by the act creating the Department of Commerce and Labor. The daily reports are also published in a monthly volume for wider distribution. The annual volume, Commercial Relations, formerly published by the State Department, showing trade conditions in each country of the world as presented by the consuls in their annual reports, is now issued by the Bureau of Statistics.

By these various publications the Department presents to the public daily, monthly, and annual statements of the commerce of the United States and of foreign countries, bringing to the attention of those interested opportunities for trade extension in the various quarters of the world. That this work is appreciated is indicated by the growing demand for these publications and by the numerous and constantly increasing inquiries received regarding commercial matters.

The growing demand for information of this character has increased the work of the Bureau of Statistics to such an extent that its present force is entirely inadequate. A considerable increase in the working force of the Bureau has accordingly been recommended in the estimates for the next fiscal year.

STEAMBOAT-INSPECTION SERVICE.

The Steamboat-Inspection Service is charged with the duty of inspecting hulls, boilers, machinery, and appliances, and of examining into the qualifications of officers, engineers, and pilots of certain classes of vessels. On the satisfactory discharge of these duties depends in part the safety of life and property on the water, so far as the Government undertakes to promote it. They are best performed by the application of common sense to the details of the technical work performed by the local officers. They involve few broad questions or principles. At the same time, the service must be administered in accordance with acts of Congress and general regulations based thereon. The defects of our inspection system are inherent in the existing laws and methods, and are not the result of a negligent or inefficient performance of duties.

The Board of Supervising Inspectors held a special session during the summer, at which some changes in these general acts and regulations were considered. The proposed changes are now under examination by the Department. With other recommendations prompted by the defects of the present inspection system, the Department will incorporate such of these proposed changes as seem desirable in a bill to amend the laws now in force. This bill will be submitted to Congress for its consideration during the present regular session. As a rule the

increased security of life and property at sea is due more to the skill of shipbuilders, improvements devised by inventive genius, and the intelligence of navigators than to Government regulation. At the same time Government regulation can assist these forces by requiring all builders, owners, and officers to come up to the standards voluntarily fixed by the most careful and scrupulous. To this end the Department will ask for such powers as will enable it to adjust its general regulations, in order that they may be adaptable to the progress made in shipbuilding and navigation, and capable of meeting the growing needs of the merchant marine.

BUREAU OF FISHERIES.

The work of this Bureau in the interests of the commercial fisheries and the food-fish supply is proceeding on well-established lines and is achieving results of pronounced economic value. The early researches of the Bureau having shown that artificial propagation was the most feasible and effective form of aid which the Federal Government could render to maintain the fishery resources of the country, fish culture soon became and has remained the dominant feature of the Bureau's operations. Numerous other lines of work, however, for the immediate benefit of the fisheries are now regularly prosecuted; thus, new fishing grounds are explored, improved apparatus is brought to the notice of fishermen, the merits of unused or little-used water products are made known and ways of utilizing them are pointed out, the best methods of preparing and preserving the catch are shown, new markets are found, timely statistics of production and prices are gathered and published, instructions for all kinds of aquicultural operations are issued, the methods of foreign fishermen in every branch of the fishing industry are studied in the interests of our own people, and in scores of other ways individuals, corporations, communities, States, and entire sections are intelligently advised and aided.

In stocking public waters with food fishes the Bureau aims to make its operations commensurate with the magnitude of the fisheries and the vast area of the fishing grounds. It is necessary to deal, not with thousands or millions of young fish, but with hundreds of millions and even thousands of millions. When the results of the season's work at the individual hatcheries are combined, the aggregates are so large as to be almost beyond comprehension, far exceeding a billion food and game fishes during each of the past few years. From 80 to 90 per cent of these fishes would never have existed but for the Bureau's efforts, as they were hatched from eggs which had been taken from wild fish caught for market.

Species to which particular attention has been directed are the shad, the cod, the whitefish, the lake trout, the basses, the trouts, and the

salmons. The shad, the most valuable river fish of the eastern seaboard, has been extensively cultivated and has long been dependent on artificial propagation. The catch is increasing yearly, notwithstanding the existence of less favorable conditions than confront any other fish of the eastern rivers. The value of the increase in the annual catch of this fish, compared with the yield in the years before the Bureau began its work, is upward of a million dollars.

As a result of the cultivation of cod on the New England coast, a lucrative inshore fishery has been built up on grounds which were either depleted of cod or had not contained cod to any considerable extent for many generations. Long continued fish-cultural operations on the Great Lakes have prevented the depletion of those waters in the face of the most exhausting lake fisheries in the world, and the perpetuation of the whitefish, lake trout, and pike perch seems assured without further curtailment of the fisheries. The extent of the salmon fisheries of the Pacific States has required the most active fish-cultural measures to keep up the supply, and the beneficial influence of the work of the Government hatcheries, supplemented by that of the coast States, has been unmistakable. Many thousands of ponds, lakes, and streams of the interior have been stocked with basses, trouts, and other suitable fishes which contribute largely to the food supply.

The Government is not only maintaining and increasing the supply of food-fish in public waters, but is doing so in accordance with sound business principles. The annual appropriations for the maintenance of the Bureau of Fisheries have been profitable investments, yielding direct financial returns to the public; and these returns have constantly been augmented and for years have been many times in excess of the total expenses of the work.

A NATIONAL AQUARIUM.

The Department has under consideration the question of establishing, in connection with the Bureau of Fisheries, a national aquarium of such size and architectural excellence that it will be a credit to the nation. Public aquaria are recognized as important aids to education and are among the most attractive and useful exhibits that can be maintained at public expense. An appropriation for such an aquarium will in due course be recommended.

PRESERVATION OF ALASKAN SALMON FISHERIES.

The large capital invested in the Alaskan salmon fisheries and value of the annual product demand that prompt action be taken to insure the permanency of the industry. The present drain on the salmon resources is so great that serious depletion is inevitable unless adequate artificial propagation and rigid inspection are instituted. The physical and biological conditions in the salmon streams of Alaska are

so varied and so little understood that final regulations governing the fisheries should be based upon thorough investigation of the waters and fish in each particular section. Such an investigation has just been made.

COMMISSION TO INVESTIGATE ALASKAN SALMON FISHERIES.

On November 8, 1902, the President directed the United States Commissioner of Fisheries to appoint a commission to make a thorough investigation of the salmon fisheries of Alaska during the season of 1903, with a view to determining their condition and needs. This order directed the Commissioner of Fisheries to designate Dr. David Starr Jordan, president of Leland Stanford Junior University, as a member of the commission, and further provided that definite recommendations should be made touching all phases of the salmon industry.

The personnel of the commission was as follows:

Dr. David Starr Jordan, executive head.
Dr. Barton Warren Evermann, acting executive head in Doctor Jordan's absence.
Lieut. Franklin Swift, U. S. Navy (retired).
Mr. Alvin B. Alexander.
Mr. J. Nelson Wisner.
Mr. Cloudsley Rutter.

An extensive inquiry into all aspects of the salmon fisheries was made by the Commission, and a preliminary report, prepared by Doctors Jordan and Evermann, dealing especially with recommendations for the protection of the fisheries, by legislation and otherwise, has been submitted to me, and will receive the careful consideration it deserves. One of the most urgent recommendations of the Commission is for the immediate establishment of Government fish hatcheries, in order to maintain the supply without curtailing production. In accordance with its recommendation the estimates of the Department include four fish hatcheries in Alaska for the propagation of salmon.

The final report of the Commission, containing the special reports of the several members, with a more extended discussion of the natural history and other questions involved, is now in preparation, and will be submitted in due course.

DUTIES OF AGENTS AT ALASKAN SALMON FISHERIES.

Under the law for the enforcement of the regulations for the protection and preservation of the Alaskan salmon fisheries, it is the duty of the agent and his assistant to maintain a police surveillance over fishing and packing operations during the active season, in order to prevent illegal methods; to report to the courts for prosecution violations of the regulations, and to supply evidence for the conviction of

the offenders; to visit canneries, salteries, and fishing grounds each year in the discharge of these duties; to collect and collate statistical information regarding the details of the industry, and to make annual reports, and, if required, special reports, to the Secretary on the work performed.

RESULTS ACCOMPLISHED BY AGENTS.

The presence of the Department's agents at the Alaskan fisheries has been beneficial as a restraining influence on destructive methods of fishing. The barricading of streams in such manner as to keep salmon from the spawning grounds is now of infrequent occurrence. The closed season has been carefully enforced and measures taken to remove as far as possible the obstacles to natural propagation.

In addition to the restraint of lawlessness, valuable service has been rendered in the collection of facts upon which to base an improvement of conditions. Thus the need of artificial propagation has been disclosed, and the necessity of revising from time to time the regulations in force. As a further result of information obtained by the agents the tax on the industry was imposed.

SALMON PACK OF 1903.

The Department's agents at the Alaskan salmon fisheries report that the past season was a prosperous one for the fisheries. The number of canneries in operation was 58, and the number of salteries 18. From incomplete returns the season's catch is estimated at about 2,400,000 cases, as against 2,631,320 in 1902. The decrease was due to an intentional reduction in the pack of inferior grades and not to a smaller supply of fish. Compared with the results of other fisheries the Alaskan output was exceptionally large. It is estimated that the world's pack for the past season will amount to about 3,457,000 cases, or 860,000 cases less than in 1902. The run of salmon at the British Columbia and Puget Sound fisheries was unusually light.

Although the season's pack of Alaskan salmon showed a decrease in volume, its market value, owing to higher prices for the better grades, will exceed that of any year in the history of the industry. It is estimated that the receipts will aggregate about $11,200,000, or a gain of nearly 30 per cent over those of the year before. The tax paid to the Government will be about $96,000.

TRANSFER OF ALASKAN SALMON AGENTS TO THE BUREAU OF FISHERIES.

In accordance with the Department's policy of consolidating and unifying related services, the agents employed for the inspection of the Alaskan salmon fisheries and for the enforcement of regulations pertaining thereto will be transferred on July 1, 1904, to the Bureau of Fisheries. The estimates submitted by the Department with reference

to appropriations for the fiscal year beginning on that date make provision for this transfer.

ALASKAN FUR-SEAL SERVICE.

DUTIES OF AGENTS ON THE SEAL ISLANDS.

The agent and three assistants appointed for the protection of the seal fisheries of Alaska are charged by law with the management of the seal fisheries and the performance of such other duties as may be assigned to them by the Department.

Their principal duty on the seal islands is to supervise the taking of seals and to keep careful counts of such skins as are taken by the lessee of the sealing right. They ascertain the condition of seal life and the number of seals present on the rookeries each season by means of daily counts of cows and of periodical counts of bulls and pups.

They also represent the authority of the Government on the islands, which are by law made a Government reservation, regulating the municipal affairs of the native inhabitants and maintaining peace and order on the reservation. They are charged with the expenditure of the natives' earnings from the taking of seal and fox skins and of the appropriation made by Congress for the support of the native inhabitants. This expenditure is effected through the issuance by the agent to the heads of native families of orders drawn on the North American Commercial Company, which at present holds the sealing right.

RESULTS ACCOMPLISHED BY AGENTS.

The work of the agents at the seal fisheries has been of decided value to the Government. Prior to the arbitration of the Bering Sea question at Paris in 1893 comparatively little was known as to the numbers of seals at the rookeries or the conditions affecting them. Since that time, however, and especially during the last seven years, definite information has been annually secured regarding the conditions of seal life. The facts obtained will be of great value should the Bering Sea question be reopened.

Through the efforts of the agents there has been started on St. George Island a fox-raising industry that bids fair to increase the number of foxes to a point where the income derived will support the natives. During the intervals between the sealing seasons roads and other improvements have been made on the islands, so that the two villages there are now models of their kind in Alaska.

The fact that during the eight months of the year when no communication can be had with the outside world a single agent on each island is obliged to maintain order and enforce respect for the authority of the Government is sufficient to show the trying nature of their duties.

SEAL CATCH OF 1903.

As a result of the killing of fur seals on the Pribilof Islands during the season ended August, 1903, there were taken 19,292 sealskins for the quota of 1903, and 82 rejected skins shipped by order of the Department and charged to the quota of 1902.

Of the 19,292 skins so taken, 3,092 were from St. George and 16,200 from St. Paul. The 82 rejected skins came from the latter island.

The catch of 1903 was 3,094 less than that of 1902. This decrease was due to the fact that bachelor seals were not present in so large numbers as in the preceding year.

The counts made on St. Paul Island last summer show that from 1902 to 1903 the number of breeding bulls on that island decreased 17 per cent and the bachelor seals 14 per cent, while the herd of breeding cows increased 3 per cent. During the four years from 1900 to 1903, inclusive, the breeding bulls have decreased 42 per cent, while the breeding cows have increased 9 per cent. The number of breeding cows present on St. Paul Island in 1903 was 82,649, and the number of breeding bulls 1,979. On St. George 14,647 breeding cows were found, with practically no decrease from the preceding year.

The presence of sealing schooners within sight of the islands this summer, before the beginning of the pelagic season in Bering Sea, indicated a pursuit of the American herd of seals during the closed season. It was impossible to determine the nationality of the schooners. There is reason to believe, however, that foreigners are not the only offenders. American citizens are undoubtedly engaged in pelagic sealing under foreign flags. If the law prohibiting such sealing is to be made effective, citizens of the United States should not be permitted to use the flag of a foreign nation as a cloak for the violation of American statutes.

BUREAU OF NAVIGATION.

The Bureau of Navigation, which is charged with the general superintendence of the commercial marine and merchant seamen, except in certain particulars, was transferred to this Department at the close of the fiscal year. At that time the documented merchant shipping of the United States comprised 24,425 vessels, of 6,087,345 gross tons, not including 1,828 yachts, of 74,990 gross tons. This fleet is manned by approximately 170,000 men, including masters. The American steam fleet is propelled by machinery of about 4,000,000 indicated horsepower, requiring an annual coal consumption of over 10,000,000 tons.

The Commissioner of Navigation recommends various changes in the laws relating to pilotage, tonnage tax, boarding of vessels, seaworthiness, and similar matters. Although in tonnage the United

States ranks next to Great Britain, the entire growth of our shipping for the past ten years has been in the domestic trade reserved to American vessels.

AMERICAN SHIPPING IN FOREIGN TRADE.

For years the condition of our shipping in foreign trade has been a matter of concern to public-spirited Americans. It is virtually the only form of commercial and industrial activity in which the country has not recently shown creditable growth. As an industry it holds exceptional relations to Government. From the nature of things, it has been exposed in an unusual degree to foreign competition. These and other considerations make it a fitting subject for our highest statesmanship. Strong appeals in its behalf by our Presidents from the time of General Grant and earnest efforts more recently in Congress have so far brought meager results.

Congress has made it the duty of the Department of Commerce and Labor to foster, promote, and develop our shipping interests. Commerce and labor, however, are not the only interests concerned in the improvement of our merchant shipping. Recent legislation and administration have aimed to render more effective the militia of the States as an important factor in the national defense. In our past wars the men and ships of the merchant marine were the reserves that put our Navy on a war footing, and under like circumstances they must perform the same service. Government aid to the merchant marine, in its naval features, should conform closely to our general naval policy. The position among nations now occupied by the United States warrants the maintenance of an ocean mail service equal to that of the United Kingdom or of Germany, in order that like those countries we may possess the best possible facilities of communication in our dealings with distant quarters of the world. By the establishment of such service other nations have helped to build up their shipbuilding industries and to strengthen their position on the sea. Expenditures for ocean mails, however, concern most directly the Post-Office Department, and must be adjusted according to the means Congress has placed at its disposal.

Should Congress provide for a commission, to be composed of the heads of the departments most nearly concerned, who could report jointly upon the relations of the merchant marine to each of these branches of government, and recommend legislation for the development of our commercial shipping in a manner best calculated to serve all the public interests concerned, some of the grounds of the present differences and disputes would be removed. If the proposed commission should include also a proper representation from the two branches of Congress, so that the investigation could readily cover matters that

are pertinent from the legislative point of view, the chances for the adoption of a definite and enduring policy, to replace the uncertainty now existing, would be largely increased. I earnestly recommend that such action be taken.

PANAMA CANAL.

The work of constructing the Panama Canal will probably soon be undertaken. It will involve the transportation of considerable material and some passengers from the United States. Trade by way of the Isthmus between our Atlantic and Pacific coast ports is now confined to American vessels. American control over the strip of territory through which the canal is to be built is to be guaranteed. The situation suggests the inquiry whether the special trade between the United States and the Isthmus, involved in canal construction, shall be confined to American vessels.

CAPTURE OF PRIVATE PROPERTY AT SEA.

One of the great concerns of commerce is the reduction of the avoidable burdens and wastes of war.

Nine-tenths of the water-borne exports and imports of the United States are carried by vessels under foreign flags. The security of our transportation facilities by sea thus rests to a great extent on the maintenance of peace between the maritime powers of Europe and Asia. The United States for many years has favored the incorporation into the permanent law of civilized nations of the principle of the exemption of all private property at sea, not contraband of war, from capture or destruction by belligerent powers. The success of recent efforts to promote the international arbitration of differences not involving national honor leads me to believe that this may be an opportune time for a resubmission to maritime nations of our traditional wishes on this subject.

We have very few merchant ships on the ocean subject to capture in a war to which the United States might be a party, while other nations have many. Although we might not be a party, a war involving any of the great foreign maritime powers would as certainly bring distress to our producing regions as would a prolonged interruption of railroad transportation. In his annual message of 1898 the late President McKinley requested authority to negotiate treaties upon this subject for the protection of private property at sea. It is a manifest duty of the Department of Commerce and Labor to invite attention to this subject.

TRADE WITH THE PHILIPPINES.

All interests concerned will be benefited by the removal of doubt as to our shipping policy for the Philippine trade after July 1, 1904.

Section 3 of the act approved March 8, 1902, contains the following proviso:

Provided, however, That until July first, nineteen hundred and four, the provisions of law restricting to vessels of the United States the transportation of passengers and merchandise directly or indirectly from one port of the United States to another port of the United States, shall not be applicable to foreign vessels engaging in trade between the Philippine Archipelago and the United States, or between ports in the Philippine Archipelago.

The vessels under American protection now employed in the inter-island trade of the Philippine Archipelago are not "vessels of the United States" in the statutory sense. Full or qualified registry must be bestowed upon them by Congress, if it is the purpose, after July 1, to restrict by specific act, as was done in the case of Alaska, Hawaii, and Porto Rico, trade among the islands as well as between them and the United States to vessels of the United States.

Last year less than 4 per cent of the merchandise transported between the United States and the Philippines was carried in American bottoms, and practically all the hemp from the islands was transported in foreign ships. Sufficient American tonnage will soon be available to conduct the trade between the Archipelago and the United States. While hitherto the application of the coasting trade laws has promptly followed our acquisition of new and even distant territory, the Philippine trade, on account of our treaty with Spain, our general policy in the East, and our relations to the people of the archipelago, present a different problem, involving matters other than a simple traditional principle.

VESSELS OF THE DEPARTMENT.

Much of the work of the Department is performed by sea and requires a considerable fleet of vessels. The needs in this respect of the Light-House Establishment, the Coast and Geodetic Survey, and the Bureau of Fisheries are set forth in the reports of those offices. Moreover, many of the duties hitherto performed by the vessels of the Revenue-Cutter Service have been transferred from the Treasury Department to the Department of Commerce and Labor. This situation has great disadvantages, which have been avoided, however, as far as was possible, by temporary arrangements and makeshifts, in the belief that the difficulty would be remedied by proper legislation when brought to the notice of Congress. Maritime interests can be further safeguarded by the enactment of legislation empowering the Department to remove derelicts from the paths of ocean steamers.

BUREAU OF IMMIGRATION.

Immigration is one of the Department's most important administrative problems. Of the numerous aliens coming annually to our shores

many possess the elements of good citizenship, but others, by reason of physical or moral defects, are strongly objectionable, and out of regard for our national well-being should be refused admission. Progress has already been made in the enactment of laws on this subject and in their enforcement, but much by way of detail remains to be accomplished. The subject is so broad and concerns so closely the people of the entire country that it should be approached in a reasonable and conservative spirit. Care should be taken not to draw hasty conclusions from unusual conditions or to advocate more radical legislation without full knowledge of the facts.

The able report of the Commissioner-General of Immigration treats exhaustively of the subject of immigration and makes recommendations that should receive careful consideration. The Bureau of Immigration was transferred to this Department on July 1. Five months only have elapsed since that date. Although much thought has been given to the various questions arising in connection with the work of the Bureau, the subject is of such vital consequence that I do not feel justified, without a fuller knowledge based upon longer experience, in making recommendations.

I take this occasion to refer to the recommendations of a commission appointed by the President on September 16, 1903, to investigate the condition of the immigration station at Ellis Island. This commission was composed of Arthur v. Briesen, chairman; Lee K. Frankel, secretary; Eugene A. Philbin, Thomas W. Hynes, and Ralph Trautman.

The results of the work of the commission should be serviceable to those charged with the administration of the immigration laws. The Department had already put into operation some of the measures covered by the recommendations of the commission; others will have its prompt attention; and still others to which those in charge of the administrative details may see objection will be afforded the fairest consideration.

NATURALIZATION.

The report of the Commissioner-General regarding the fraudulent use of naturalization papers demands serious attention. The extent to which such frauds are successfully practiced in order to evade the immigration laws shows clearly the need of legislation to safeguard more thoroughly the method of obtaining citizenship and to prevent the fraudulent use of certificates of naturalization.

BUREAU OF STANDARDS.

The Bureau of Standards is intrusted with the care and use of the national standards of measure, with the development of methods of

measurement, and with the dissemination of knowledge concerning these subjects, as applied in the arts, sciences, and industries.

The standards of length and mass are the fundamental standards of matter. From these and from the unit of time all other standards are derived, either directly or indirectly. The derived standards include those used in the measurement of volume, density, capacity, velocity, pressure, energy, electricity, temperatures, illumination, and the like. The production of copies, multiples, and subdivisions of the fundamental standards, the construction of the derived standards, and the comparison of the standards used in scientific work, manufacturing, and commerce, with the fundamental or derived standards of the Government, involve scientific work of a high order.

The indications of measuring instruments and meters of all kinds depend upon their agreement with original standards. The investigation and testing of all classes of measuring instruments form a large and important part of the work of the Bureau.

The work for which the Bureau was established includes research and testing in the domain of physics, extending into the field of chemistry on the one hand and of engineering on the other. The union of research and testing in one institution is most advantageous, enabling the Bureau to bring its work of standardization and testing to the highest possible degree of efficiency. In order to exercise its functions properly, the Bureau must be provided with suitable laboratories and equipment and with a sufficient corps of specialists in the various lines of scientific work involved.

Pending the completion of the two new laboratories for the Bureau, its work has been carried on in temporary quarters. The mechanical laboratory is now ready for occupancy, and a large part of its equipment is provided. The physical laboratory was begun in March and is well under way. It will be ready for occupancy early in the spring, and funds for its equipment should be provided during the coming year.

The Bureau is frequently called upon by Government offices and by scientists and manufacturers for information concerning standards, methods of construction and measurement, and physical constants, as well as for the comparison of private standards with those adopted by the Government.

Standards and measuring apparatus submitted for verification are critically examined for faulty construction. Manufacturers keenly appreciate unbiased criticism of their instruments, and have been quick to adopt improved designs to increase accuracy. Direct and permanent improvements in this large class of instruments have resulted. In furnishing the sealers of weights and measures throughout the country with accurately compared standards of length, mass, and capacity, and in designing a set of model weights for purposes of comparison, the Bureau has provided means by which the weights and

measures used in the entire wholesale and retail trade of the United States will be placed upon a basis of uniformity and precision hitherto lacking. Furthermore, manufacturers of all kinds of measuring apparatus have visited the Bureau to consult its specialists and inspect its standards and measuring instruments, as well as to study the conditions and methods of refined testing. The frequency of such visits is evidence of their value in improving the manufacture and use of standards in measuring instruments.

The investigations of the Bureau in the directions indicated are of permanent and far-reaching value to the scientist, manufacturer, and the general public.

WIRELESS TELEGRAPHY.

At the preliminary international conference held at Berlin in August last to consider the regulation by Government of wireless telegraphy, especially for the purpose of securing the greatest freedom in the development and use of various systems and of preventing the establishment of a monopoly in this important means of transmitting commercial intelligence, the Department was represented by Mr. John I. Waterbury, of New York. The War and Navy Departments were also represented. The report of the American delegation has been forwarded to the Secretary of State. The draft of the proposed international agreement is now under consideration.

PUBLIC IMPROVEMENTS AFFECTING COMMERCE.

The Department is in almost constant receipt of resolutions and other communications requesting its cooperation in public improvements, notably those of commercial importance, such as river and harbor improvements. I can not at present make recommendations in particular instances of this kind, for the duties required by the initial work of the Department have made it impossible to give these suggestions the mature deliberation on which recommendation should be based. All questions of this nature, however, including those relating to the ports of New York and Philadelphia, will be given immediate consideration by the proper bureaus, and will be decided as promptly as the Department finds itself ready for action.

FUTURE OF THE DEPARTMENT.

At the brief exercises held on July 1 in connection with the transfer of various bureaus to the Department, I referred to the following letter, written to the Marquis de Lafayette, in the year 1788, by Commodore John Paul Jones, expressing his views as to the new Federal Constitution:

Meeting General Hamilton at the house of Colonel Van Courtlandt about this time, I asked him what provision was going to be made for the Navy when Congress came

to enact laws for the structure of the executive branch as provided in the Constitution. The General told me it was practically agreed in Congress that when that time should arrive they would create four ministers; that of Foreign Affairs, that of Finance, that of War, and that of Justice. And he said it was agreed, for the present at least, to merge the concerns of the Navy in the Ministry of War.

To this I at once ventured protest. * * * The situation of our country is such that the growth of its Navy can not be long deferred; * * * .

Our Navy must grow with our commerce, and it is upon the sea, rather than on the land, that we must in future meet the nations of the Old World on equal terms. * * *

The time must soon come when the logic of events will compel the country to create a separate Ministry of Marine. * * *

Had I the power I would create at least seven ministers in the primary organization of government under the Constitution. In addition to the four already agreed upon, I would ordain a Ministry of Marine, a Ministry of Home Affairs, and a General Post-Office; and, as commerce must be our great reliance, it would not be amiss to create also, as the eighth, a Ministry of Commerce.

I took occasion to say at that time:

The entire Cabinet of to-day is embraced in this statement, for agriculture was for a time under the Ministry of Home Affairs.

And, gentlemen we have now not the eighth—under which are appropriately represented our great agricultural interests—but the ninth, the Ministry of Commerce, and coupled with it the Ministry of Labor. * * *

On February 16 the entire personnel, strictly speaking, consisted of one official, the Secretary. A few days later another official was added, in the person of the Commissioner of Corporations. To-day in the city of Washington, owing principally to the transfers now made, the personnel consists of 1,289 persons, and in the country at large of 8,836 persons, making a total of 10,125. This latter number will be very considerably increased at certain periods each year, notably in the Light-House Service.

In the initial days of the Department the expenditures were principally the salary accounts of two officials; to-day the expenditures for which appropriations have been made are $9,796,847, which large sum will be later augmented by such additional appropriations as Congress may see fit to make to defray necessary and legitimate expenses for which there is at present no adequate provision. * * *

We have intrusted to our hands a great undertaking. * * * What we have planned we shall now try to advance and perfect in the larger field that to-day opens before us, and we shall confidently expect to have the loyal and devoted support of the chiefs of the various bureaus and of the entire personnel.

* * * * * * *

To-day the new Department moves forward, and as it takes its place by the side of the other great executive establishments, it will catch the step and the swing of their onward movement in the nation's progress and prosperity.

No other Department has a wider field, if the just expectations of the framers of the legislation are realized. None will have closer relations with the people or greater opportunities for effective work. While we can not dedicate a new and imposing structure to the uses of this Department, we can at least, and I am sure we all do, dedicate ourselves to the work which Chief Executives have recommended and Congress in its wisdom has set apart to be done. In this spirit I have thought it altogether fitting and proper that we should have these brief exercises, and that in them we should emphasize the fact that if we are to have the highest success as a nation in our commercial and industrial relations, whether among ourselves or with

other peoples, we must keep ever to the front and dominant always those sturdy elements of character and the dependence upon Divine guidance which were so signally shown by the founders of the Republic and to which we can not too often revert in these busy and prosperous times which make memorable for us the opening years of the new century.

The Department deals with the great concerns of commercial and industrial life. To be of service to these interests it must have their hearty cooperation and support. It must be a Department of business. It must be progressive, but at the same time conservative. It must not deviate in its course from the pathway of justice, strict and impartial. It must be nonpartisan in the highest and broadest sense. It must recognize no distinction as between large and small interests, as between the affluent or powerful and the humblest citizen. If it attempts to occupy a field that properly belongs to private endeavor, it will inevitably fail to realize the high hopes of its present wellwishers. It must adhere rigidly to the lines marked out since the foundation of the Government for Federal agencies in executing the will of the people. If these general principles are made effective—if conservatism and impartiality, coupled with ever-increasing efficiency, mark its administration—I can not but believe that this new Department will become a mighty influence for good in our commercial and industrial affairs.

GEO. B. CORTELYOU,
Secretary.

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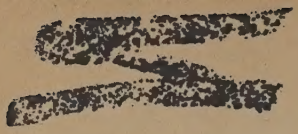

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